18

S. Hrg. 103-85

OVERSIGHT OF THE SUPERFUND PROGRAM IN NEW JERSEY

Y 4.P 96/10:S.HRG. 103-85

Oversight of the Superfund Program...

HEARING

BEFORE THE

SUBCOMMITTEE ON
SUPERFUND, RECYCLING, AND SOLID WASTE
MANAGEMENT

OF THE

COMMITTEE ON
ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE

ONE HUNDRED THIRD CONGRESS

FIRST SESSION

APRIL 12, 1993—TRENTON, NEW JERSEY

Printed for the use of the Committee on Environment and Public Works

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OVERSIGHT OF THE SUPERFUND PROGRAM IN NEW JERSEY

MONDAY, APRIL 12, 1993

U.S. Senate,
Committee on Environment and Public Works,
Subcommittee on Superfund, Recycling,
and Solid Waste Management
Trenton, NJ.

The subcommittee met, pursuant to notice, at 10:15 a.m. in the Legislative Office Building, Room 9, Trenton, New Jersey, Hon. Frank R. Lautenberg [chairman of the subcommittee] presiding.

Present: Senator Lautenberg.

OPENING STATEMENT OF HON. FRANK R. LAUTENBERG, U.S. SENATOR FROM THE STATE OF NEW JERSEY

Senator Lautenberg. I will call the subcommittee on Superfund to order. I apologize for our tardy start.

Today we begin the first in a series of intensive hearings reviewing the operation of the Federal Superfund law for cleaning up toxic waste sites. We will be looking back on 12 years of mismanagement by previous Administrations. We're going to review a record of sidetracks and delayed cleanups in the face of significant threats to health and environment, but we will also be looking forward to working with our new President, a President who wants to enforce the law and clean up the program.

As one of the harshest critics of the management of Superfund, I want to work with President Clinton to turn this program around and ensure the prompt, efficient, and complete cleanup of high-priority waste sites. As we move into the reauthorization of Superfund, I am going to be guided by four core principles: that we need to speed cleanups; we need to spend less money on lawyers and more money on actual cleanup; we need to ensure fairness, particularly for small businesses and municipalities, while insisting that polluters stay liable for cleaning up their mess; and we need to eliminate the waste, fraud, and abuse that has detracted from the merits of the program and stained such progress as has been made.

If we take these steps, we can turn the program around and move more quickly and more efficiently to comprehensive of the toxic waste sites that our State has. The health and environmental threats posed by Superfund sites make it a question of how, not whether, we clean them up.

The Superfund law is one of the most significant Federal environmental programs for the citizens of New Jersey. Here in New

Jersey we have a long history of industrial activity, and we're the most densely populated State in the Nation, so that people invariably live close to these sites. We also rely on groundwater as a primary source for drinking water. We have 113 Superfund sites and 50,000 lower-priority toxic waste sites, giving us more Superfund sites than any other State in the country.

As Chairman of the Senate Superfund Subcommittee, I will be devoting much of my energy this year to reviewing this important law and deciding how it can be improved. I will be working closely with the Clinton Administration and with representatives of all groups that have an interest that are affected by this law.

Perhaps most importantly, I want to hear from people in New Jersey to get their ideas on how to make the program work better.

It is an unfortunate fact that for much of the short history of the program, Superfund has been noted for its mismanagement. The head of the Superfund program in the early years, Rita Lavelle, actually went to prison because of perjury over her running of the program. The EPA Administrator at the time, Anne Burford, resigned largely because of charges of mismanagement of the program. While former EPA Administrator Bill Reilly took important steps to toughen the enforcement program and ramp up the pace of cleanups, much work remains to be done.

What's really at stake for New Jersey? Recent scientific studies confirm that if you are pregnant and you get your drinking water from groundwater that has been contaminated by a Superfund site, you will be more likely to have a baby with birth defects affecting the nervous system and the heart. You may face higher rates of death from cancer of the esophagus, stomach, colon, and rectum if you live near a toxic waste site. And if you're unfortunate enough to be directly exposed to one of the dozens of sites where EPA has taken emergency removals in New Jersey, you may suffer some acute effects that could permanently affect your lungs or nervous system or reproductive ability.

Clearly, there is an urgent need out there to clean up these toxic waste sites before we and unborn children are further poisoned. With 41 million Americans living within four miles of a Superfund site, and so many sites in New Jersey, we simply cannot afford to let these sites fester and threaten even more people.

So there is a lot at stake for New Jersey, but there has also been progress in this State. Cleanup at roughly half of the sites or portions of the sites in the State has been completed. There is no additional activity other than the operation and maintenance of treatment facilities that is required for these sites. A new, tougher enforcement approach, which I pushed the agency to adopt in 1988, has resulted in almost half a billion dollars of cleanup work in New Jersey, paid for by responsible parties, the polluters. This means less money coming out of the taxpayers' pockets. Under the program, emergency removal actions have taken place at 190 sites in the State, literally taking explosive situations in often densely populated areas and defusing them before people can be hurt by them.

But as we will hear today, the Superfund program in New Jersey has had its share of bad news as well as good. Delays in cleaning up the CPS Madison site in Perth Amboy resulted in the city's drinking water supply being contaminated. Basically, while the polluters fiddled around, Perth Amboy began to suffer. We will hear of other sites in the State where delays—some understandable, others not—may have left our citizens exposed to the health and environmental threats that Superfund should be addressing.

As we proceed with the reauthorization of Superfund in Congress, what is happening in New Jersey will be at the top of my list in identifying what needs fixing and what doesn't. That's why I'm beginning the process here, in my State of New Jersey, and I look forward with interest to the testimony of those who will bring us their statements and testimony today as we set the framework for the national debate.

We have a rule in this subcommittee—some call it the "cruel rule" but we hope it will be fair—it says that after all of your hard work and all of your skills and knowledge are brought to bear, we give you five minutes to present your testimony. However, as I think all of you have been made aware, we will take your full statement and include it in the record. We have a five-minute timer over here that informs you when your time is up. In any event, we are happy to have you all here.

Dr. Lybarger, perhaps you should be the first. Again, we will ask you to try to limit your comments to five minutes. We will remind you if the time runs over.

Thank you for being here. Please proceed.

STATEMENT OF JEFFREY LYBARGER, M.D., DIRECTOR, DIVISION FOR HEALTH STUDIES, AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY, ATLANTA, GEORGIA

Dr. Lybarger. Good morning. I am Dr. Jeffrey Lybarger. I am the Director of the Division of Health Studies of the Agency for Toxic Substances and Disease Registry.

I welcome this opportunity to come before you this morning to brief you about the adverse health impacts associated with exposures to hazardous substances released from Superfund sites or from emergency releases. In doing so, I will emphasize our activities in New Jersey.

Over the past six years since Superfund was reauthorized, ATSDR and others have accrued a considerable amount of information bearing on the health implications of Superfund sites. ATSDR has reviewed the published scientific literature and, together with our direct health activities in communities impacted by hazardous waste sites, it leads us to conclude that releases from some waste sites may be, in some manner, associated with a small but increased risk for developing adverse health effects. This concern for long-term exposure to low levels of hazardous substances to a large number of persons nationally is well exemplified by our experience in evaluating the waste sites in New Jersey.

I would now like to summarize what ATSDR has learned about human exposures to hazardous substances in the environment and our concerns about adverse health effects that may result from those exposures.

Since 1986, the agency has completed more than 1,500 public health assessments, impacting an average of 1,900 people at each site; 136 of those public health assessments were conducted at 115 sites in New Jersey.

In New Jersey, 94 percent of the sites had the potential for human exposure to site-related contaminants. ATSDR considered one site to be an urgent public health hazard, and an additional 23 sites were considered public health hazards because they had a completed pathway of human exposure.

The most commonly occurring contaminants at hazardous waste sites in New Jersey are industrial solvents called Volatile Organic Compounds, and heavy metals. Of the 24 sites of major concern, trichloroethylene and some other Volatile Organic Compounds were contaminants at 17 of these 24 sites, and lead was a contaminant at 14 of these sites. Although these are the most commonly encountered contaminants, many different chemicals can be found at hazardous waste sites.

Once hazardous substances are discovered at a hazardous waste site, it is critical to understand how they are being released from the site and whether and how humans may be contacting these hazardous substances. The two most frequently contaminated media for sites in New Jersey are soil and groundwater. Groundwater was found to be contaminated at 108 of the New Jersey NPL sites, which contributed to documented or possible human exposure at 47 sites. It was the principal pathway of human exposure in 20 of the 24 sites for which ATSDR had our greatest concern for human exposure.

When water is contaminated, ingestion is frequently a major concern. Although ingestion is the usual route of human exposure, volatilization or off-gassing, and dermal or skin exposure, may also occur. Of singular importance is the use of Volatile Organic Compounds contaminated water for bathing and showering.

Contaminated soil was also found to be a concern for New Jersey sites. It was found to be the medium of concern for at least 54 of the sites. Normal hand-to-mouth behaviors for children between six months and six years of age make them especially prone to soil ingestion.

I would now like to describe some of the studies and health activities supported by both ATSDR and other investigators regarding Volatile Organic Compounds.

ATSDR supported an important health study in New Jersey which evaluated reproductive outcomes related to public drinking water systems serving 75 towns in northern New Jersey. Hazardous wastes were thought to have been among several sources of contaminants in water supplies for the towns selected. Although these findings are not sufficient to prove causal associations with the contaminants, significant associations were found for several contaminants and low birth weight, intrauterine growth retardation, central nervous system defects, major cardiac defects, neural tube defects, and oral cleft defects; and we have determined that from a public health perspective these associations should be taken seriously.

Similar studies have been performed. ATSDR has supported an important study on this topic with the California Department of Health Services, which investigated a similar relationship between maternal residence and the presence of hazardous waste sites. The study concluded that maternal residence at the time of the child's birth, in a census tract with a hazardous waste site, significantly increased the risk of giving birth to infants with malformations of the heart and circulatory system. A similar study in New York had similar findings.

In another study of cardiac congenital malformations in Tucson, Dr. Stanley Goldberg, a pediatric cardiologist in the area, reported that the proportion of cases of congenital heart disease among live births was significantly greater for mothers who had residential exposure to contaminated waters.

Volatile Organic Compounds, especially trichlororethylene, have also been evaluated for other adverse health effects through the National Exposure Registry conducted by ATSDR. The analysis of the initial baseline health information found that registrants reported several adverse health conditions at greater rates than persons participating in the National Health Interview Survey.

In summary, ATSDR has acquired a great amount of information over the past six years on the associations between human health and exposure to hazardous substances from waste sites and from emergency releases. There is now information which describes how human exposures to hazardous substances may be occurring, and a growing body of information that a greater burden of adverse health effects may be occurring among some people living near hazardous waste sites.

ATSDR will continue to do our site-specific evaluations and other health studies to evaluate these adverse health effects. The vital business of conducting health studies and other scientific investigations to characterize the public health impact of environmental hazards must be continued. We look forward to sharing information with Congress during this and future hearings on Superfund.

Senator LAUTENBERG. Thank you very much. Thank you, Dr. Lybarger.

Dr. Kipen, we will hear from you now.

STATEMENT OF HOWARD M. KIPEN, M.D., ASSOCIATE PROFESSOR, ROBERT WOOD JOHNSON MEDICAL SCHOOL, AND MEDICAL DIRECTOR, ENVIRONMENTAL AND OCCUPATIONAL HEALTH CLINIC OF THE ENVIRONMENTAL AND OCCUPATIONAL HEALTH SCIENCES INSTITUTE, PISCATAWAY, NEW JERSEY

Dr. KIPEN. My name is Howard Matthew Kipen. I am an Associate Professor at UMDNJ-Robert Wood Johnson Medical School, an internist and occupational physician, and I am Medical Director of our Environmental and Occupational Health Clinical Center, housed in our Environmental and Occupational Health Sciences Institute. In addition to patient care, my duties include epidemiologic and clinical research. I have two grants from NIH and one EPA contract. I teach; I do public service on various Federal, State, and local committees; and I am president-elect of the Occupational Medicine Association of New Jersey and Secretary of the Board of Directors of the AOEC.

Before I give you the particulars of my testimony, I would like to thank you for inviting me here today. I would also like to take this opportunity to thank you for your leadership in this vital area affecting our health. I specifically want to give my unequivocal support for two aspects of the Superfund law with which I've had the greatest familiarity.

The first is federally sponsored research into the human health effects of hazardous chemicals, such as Dr. Lybarger was referring to, especially at the low levels relevant to real-world decisionmaking about cleanups.

The second area, perhaps less appreciated but of equal or greater importance to the health and happiness of Americans, is the initiatives of ATSDR and NIEHS to improve the inadequate knowledge base of American physicians with respect to chemical toxicity, exposure, and risk assessment and counseling issues. These agencies are engaged in critical research in education initiatives for both medical school curricula, such as the academic awards at NIEHS, and for continuing education of private physicians, such as the ATSDR case studies and other sponsored programs. Because of the central role of physicians in educating and guiding their patients, a thoroughly informed and responsive medical community is vital to communication and interpretation of toxic chemical issues for the emotional as well as physical well-being of the public.

Our clinical center has seen thousands of patients with illnesses or issues relating to toxic chemicals since it opened in 1985. I have selected a few examples of cases related to exposure to hazardous waste NPL sites, and then I will discuss more general issues related to toxic chemicals.

I have particular familiarity with one NPL site in New Jersey known as White Chemical in Newark. This site contained the remnants of a specialty chemical manufacturing plant, mostly unlabeled drums of acids, but a number of other chemicals, too. I have cared for four individuals, two EPA site investigators, one ATSDR investigation employee, and a Newark city fireman, all of whom developed environmental or occupational asthma in 1990 or 1991 as a consequence of inspecting or supervising work on that site.

I believe the fireman's exposure occurred before the site was named to the NPL and before the highly toxic nature of its contents was fully appreciated. All of these individuals have suffered long-term—perhaps permanent—respiratory impairment as a consequence of exposures on the site. All now require daily medication to control their symptoms, and the three hazardous waste workers have had to seek new employment.

There is no doubt in my mind that the respiratory illnesses in these remediation workers arose from the site in question. Exposure to the surrounding community, of course, would have been lower, but I am aware of complaints from adjacent work places, and possibly from residential areas. None of the treating physicians of these individuals were comfortable addressing their concerns about hazardous waste exposure.

A second example was examination and counseling of a family referred to me by ATSDR in 1991, who live and work on an NPL site in Meyersville, New Jersey. Their soil is contaminated with asbestos manufacturing waste, and the exposures occurred over a number of years to the parents, children, tenant, and employees of the father's business. The family suffered greatly, both emotionally and financially, because of this.

I have also examined four workers from a Tampa, Florida facility who were exposed to hazardous waste while working as unprotected construction workers on what ended up being a toxic waste site from coal gas transformation into municipal gas, on an abandoned site. All four have neurologic illness, which is easily attributable to dermal exposures at the site.

I have provided these three examples of respiratory, neurologic, and other disease due to hazardous waste, although we see many other patients, especially pregnant women, who are concerned about reproductive hazards. We try to counsel them as best we can, although often with inadequate exposure information. Most practicing obstetricians, and even genetic counselors, have little or no training or experience in providing counseling and realistic concerns to toxic waste issues with pregnant women, or occupational issues.

Additionally, we have consulted a municipality which had a concern about a cluster of leukemia among young female children in their area. Again, we provided information and guidance after some really misleading information had been provided by the treating oncologist.

This leads me to the related but frequently overlooked area of the difficulty of discussing the health effects of toxic waste. While there are reasonable standards for establishing whether a population such as Dr. Lybarger was discussing, exposed to hazardous chemicals, has an excess risk of disease, there are no such well-established standards for making decisions in individual cases. It relies on clinical judgment which depends on the educational initiatives, many of which are sponsored by Superfund legislation.

Thank you very much.

Senator LAUTENBERG. Thank you very much, Doctor.

And now, we'll hear from Mr. Kodjak. We are glad to have you with us. Please give us your testimony.

STATEMENT OF DREW KODJAK, NEW JERSEY PUBLIC INTEREST RESEARCH GROUP, TRENTON, NEW JERSEY

Mr. KODJAK. Thank you, Senator. Thank you for this opportunity to speak with you about the ecological impacts of Superfund sites in New Jersey.

I am Drew Kodjak, environmental attorney for the New Jersey Public Interest Research Group (PIRG).

The subject of my testimony is ecological impacts, but I think I would be remiss if I didn't mention that within the definition of ecology, which means the relationship between organisms and their environment, organisms are also human beings, as well as plants and animals. While I think it is an important exercise to look specifically at what's going on with plants and animals, we shouldn't make the distinction of separating out humans from plants and animals. It may lead to the erroneous idea that human beings are not as dependent on the environment as plants and animals are. That would be wrong.

One of the examples which I would like to give as sort of a nice historical anecdote is the use of the canary in a coal mile. Miners used to use canaries as sort of a crude warning system; if they died, then the miners knew to evacuate. One of the things that we should be doing is looking more closely at what's happening to our plants and animals as a way of not only gauging what's going on out there as far as toxics in our environment, but also as a way of safeguarding the quality of life which we have in New Jersey.

An analysis of Superfund sites in New Jersey and their impact on the environment represents an alarming picture. Of the 113 Superfund sites in New Jersey, 92 percent have contaminated the groundwater. Hazardous substances which appear in 10 percent or more of these sites are Volatile Organic Compounds, heavy metals, and pesticides. Soils are contaminated at 82 percent of the sites; again, VOCs, heavy metals, and—this time—polychlorinated biphenyls, or PCBs, as well as creosotes and pesticides which also contaminate at least 10 percent of these sites.

Surface waters are contaminated at 52 percent of the sites, and the principal contaminants are the same as those found in the soils.

When you get to environmentally sensitive areas, the information is less specific. You can draw conclusions that about 34 percent of the sites are actually impacting environmentally sensitive areas, but insufficient work has been done in this category of impacts to calculate the principal contaminants at these sites. In fact, more than 20 percent of the environmental damage from hazardous substances released by Superfund sites in the Region II area is not accounted for by EPA. So in other terms, if the canaries are dying, we don't know about it.

When people think of natural wonders, they usually think of the Grand Canyon or the great redwoods. In New Jersey we have our own natural wonder, and that's the Pinelands, covering 1.1 million acres. It's the largest contiguous piece of open space between Washington, D.C. and Boston. It holds 17 trillion gallons of pristine, clean drinking water, which is the largest aquifer east of the Mississippi River. Unfortunately, it is also the home of nine Superfund sites. And although contamination is probably only part of the cause, the Pinelands is the home of 54 plant and 39 animal species threatened with extinction, some of them found nowhere else in the world.

At more than half of the Superfund sites in the Pinelands, final cleanup actions have been started and cleanup is underway. The environmental degradation and decrease in species would no doubt be far greater if these hazardous substances were left untreated by the Superfund program.

This leads me to the conclusion that the Superfund program is essential to the reduction and elimination of threats associated with hazardous waste sites in New Jersey. Despite criticism by industry, often through paid advertisements, the Superfund program has made considerable progress in actual cleanups. In 1991, construction had started at more than four times as many sites as in 1986. Of the sites currently on the NPL, more than 500—or nearly half—have had actual cleanup activity.

The Superfund program also provides significant incentives for industries to handle hazardous substances to reduce the use in order to avoid costly disposal and the possibility of cleanup costs. In 1991, according to data collected from Title III of Superfund, national total emissions declined by 600 million pounds, or roughly 11 percent, and in New Jersey the reductions were even more dramatic. They reduced about 25 percent of those emissions.

I appreciate the opportunity to testify before you, Senator Lautenberg, and I'd be happy to answer any questions that you may have.

Senator LAUTENBERG. Thank you very much. I appreciate the excellent testimony.

I want to thank Dr. Kipen for his kind remarks. You noted your association with Dr. Selikoff, or at least with the work that you did. That's when I first became aware of the fact that there were materials out there that could seriously damage your health. I went to high school in Paterson, New Jersey, and there was a company that used asbestos in its manufacturing process. Unfortunately, a friend of mine, an attorney, died some 20 years after his exposure in high school due to a short work stay at this asbestos company. Dr. Selikoff was the one responsible for alerting us to the danger of asbestos in terms of lung disease. His work has resulted in the fact that we now treat asbestos as a very dangerous substance and its use and manufacture is very carefully limited. As a matter of fact, there are very few places where asbestos is still used, but the average home in New Jersey that has any age on it used asbestos throughout the house, including my home in Montclair, New Jersey. That was the insulating material used for pipes.

Unfortunately we know lots of stories about those people who worked in asbestos manufacture. In one case, a family—I believe the location was Bound Brook, New Jersey; I met the people—the husband had died, and both mother and son had developed cancer as a result, it is believed, of association with the material that the father brought home in his work clothes each day. They had to be laundered. The son didn't do the laundering, but was just exposed to it.

Anyway, that was a significant change in the attitude of people across our country, and as a consequence we not only developed Superfund but other kinds of laws to protect human health from these materials that are either emitted or discharged into the water or the air and so forth.

Dr. Lybarger, I just wanted to ask a couple of questions. The various health effects, other than cancer, that are posed by hazardous substances found at Superfund sites, are all these conditions exposed fairly quickly? Are the illnesses apparent soon after exposure?

Dr. LYBARGER. Thank you for the question, Senator.

I think it is important for everyone to realize that these conditions aren't easily recognized, and are not recognized for many years. There are a few substances which have higher exposures. Such instances may be where emergency releases may have occurred, where the adverse health effects are quite immediate and quite devastating. However, for the long-term low exposure that is frequently seen around most hazardous waste sites, the adverse health effects may be quite latent and only appear many years later. This may be complicated by a person moving around a great deal and not quite characterizing their exposures that may have happened many years before that. So it's a major problem and it has to be realized.

Senator LAUTENBERG. Dr. Kipen, is your experience similar in terms of when the disease or the illness is detected? We know that a lot of it does take time to develop, but are there fairly early signs that in some cases can alert us to the fact that this person's health has been damaged by exposure to these materials?

Dr. KIPEN. It depends on the nature of the exposure, at how high a level it occurs, and also on the particular organs affected. In the asthmatic individuals I was speaking of, they have symptoms within hours to days of being on the site, and that's the way acute asthma-like respiratory disease works. If the substance had been asbestos, as it was with the family I told you about, they have absolutely no symptoms, and at this point they have no documented disease either. In 20 years, as you described with your colleague, they could well develop significant problems, and that's the issue. It varies from place to place.

One of the problems that I told you about before with physicians is that they're not well enough steeped in these issues to appreciate the nuances and the variations. Sometimes they think that if it didn't hit you, it never will; other times they think, you're going to get sick, whereas it's not all that likely that this family will have horrible things happen to them.

Senator LAUTENBERG. In the case of the workers at the White site, you say the disease was first noted fairly quickly after exposure in the case of the asthmatic response, right?

Dr. KIPEN. Well, the fireman developed symptoms almost right away, but I don't think he presented for medical care for maybe three or four months, and then through a circuitous route he got referred to us, and we attributed his symptoms back to the site. So it ended up being a period of many months, but he felt ill from the onset.

Senator LAUTENBERG. That then became a permanent part of his condition, right?

Dr. KIPEN. Yes.

Senator LAUTENBERG. That was a long-term chronic illness?

Dr. KIPEN. The last I saw him, he had had it for two years. That's right.

Senator LAUTENBERG. Again, Dr. Lybarger, you noted that TCE is a most prevalent contaminant at New Jersey sites. I think you said that at present nearly two-thirds of all New Jersey sites, is that correct?

Dr. LYBARGER. Yes.

Senator LAUTENBERG. What kind of health threats are posed by exposure to TCE?

Dr. LYBARGER. Trichloroethylene is one of the very commonly encountered contaminants of groundwater and surface water supplies around the country. Because it is a commonly encountered contaminant at many Superfund sites, we have determined that it would be appropriate for us to put it on our National Exposure Registry. So we currently have around 5,000 persons on our subregistry for TCE.

We are in the process of evaluating the adverse health effects on those persons. We have encountered a number of adverse health effects where people are reporting these at higher levels than the National Health Interview Survey. We are in the process right now of informing the registrants exactly of those health outcomes, but they go beyond just the adverse reproductive outcomes that we described in the studies that had occurred in New Jersey and elsewhere around the country.

There are concerns about its long-term health effects. There is a potential for carcinogenicity, although that has not been definitively determined.

Senator LAUTENBERG. How about in communities around the sites? You didn't say anything in your testimony about cancer rates. Is there any data on this subject?

Dr. LYBARGER. There are two studies that we refer to that are of similar design to those that I talked about previously, where there was simply a correlation or an evaluation of the similarity between where people lived with cancer and the presence of a hazardous waste site. The Environmental Protection Agency has done one study around the country, correlating counties where hazardous waste sites were present and cancer rates, and another study was done by an independent researcher in New Jersey back in the early 1980s. Both of these studies have found a relationship between proximity to a hazardous waste site, and some cancers, especially gastrointestinal cancers. These have not always been validated in some other studies that other researchers have done, so the review of this particular topic is slightly more mixed than for the adverse reproductive outcomes. However, it is something that we are quite concerned about and would like to continue to evaluate.

Senator LAUTENBERG. Is the suspicion that you have borne out by any development or explosion of indicators that cancer might either follow on or have its beginnings established in people in these communities?

Dr. LYBARGER. At this point we have not found a large pattern. There are obviously examples, such as Dr. Kipen pointed out, where people have had some high exposures in the past from hazardous waste sites and may be at risk for development of cancer. At this point we have not seen any large trends other than the two studies I have mentioned.

Senator LAUTENBERG. Dr. Kipen, are there any indications that the immune response within these people to disease or to exposure is lowered in any way so that that might result in cancer developing?

Dr. KIPEN. Well, there is certainly concern for that, Senator. Immunotoxicology is a fairly well-developed field in animal studies, and it's a fairly underdeveloped field in human studies. ATSDR has been leading the way, having organized a conference last June of which I was privileged to be the chairman, trying to establish the tests to do on immunotoxicology that would let us answer questions like you asked.

There are some reports that are out there, but I wouldn't call them "confirmed" yet, and the idea that they would actually lead to cancer through that mechanism is something that we certainly need to investigate with a lot of vigor. But we don't have that answer now.

Senator LAUTENBERG. Well, I believe each of you thinks that Superfund sites do pose health threats; fair to say?

Dr. LYBARGER. Yes.

Dr. KIPEN. Yes.

Senator LAUTENBERG. That being the condition, can the Superfund program do enough to eliminate those threats?

Dr. LYBARGER. The evaluation and cleanup of hazardous waste sites is a very important part of primary prevention activities. The cleanup of those sites will prevent future exposures and will make sure that the risk associated with those exposures would be eliminated at the earliest point of concern.

However, the cleanup of the sites will not eliminate all the public health concerns related to hazardous waste sites. There is a legacy now of people who have been exposed to hazardous substances from hazardous waste sites in the past, who will have continued concerns about their health. Those health problems may well develop in the future. The cleaning up of the sites right now will not eliminate that. So there is an important public health concern about this legacy of exposure that still needs to be addressed and will continue to need to be addressed on into the future.

Senator LAUTENBERG. Do you want to comment on that, Dr. Kipen?

Dr. KIPEN. I would just say that of course, we need to accomplish as many cleanups as we can. Unlike Dr. Lybarger, I'm not expert on exactly what has gone on, but the need to understand what we're cleaning up and why, and to understand the low levels of exposures and what they do, I think is critically important to making informed cleanups.

Senator LAUTENBERG. Mr. Kodjak, you've run through a list of some endangered species and other aspects of our State ecology that are adversely affected by Superfund sites. We have heard the traditional complaints about the snail darter and other species on the endangered list. We have evidence of lots of species that used to exist but no longer exist.

What's so important about preserving—I forget the precise species that you identified; a frog?

Mr. KODJAK. It's a salamander, actually.

Senator LAUTENBERG. A salamander, okay.

What's so important, just for general information, about preserving one or more of these species?

Mr. KODJAK. First of all, I think that the citizens of New Jersey place high importance on the surrounding environment, on their use of open spaces in their continual reaffirmation of the Green Acres Program. But when you get specific, I think everyone knows about the Pacific yew, which is now used—there is a drug the bark called Taxol which is used in anti-cancer treatment.

We have similar species in New Jersey. There is a species called the Paw-Paw, which is actually endangered in New Jersey, which is found to have biologically active compounds which pose very impressive anti-cancer properties. There is also another species, called the May Apple, which is actually common in the deciduous forests of New Jersey, that is also being used to treat specific cancers.

That is just one example, aside from the quality of life effects, as to why we really need to protect and preserve not only our plant species.

Senator LAUTENBERG. And the whole ecological structure—food chains, et cetera—is affected significantly by the disappearance of a specie of plants, shrubs, small animals, et cetera?

Mr. KODJAK. The real point is biocumulation of PCBs, which are found in fish and shellfish. RDEP has done several studies on that biocumulation and the potential risks to the native people actually fishing in those waters and eating those shellfish or fish.

The point is that it is all a closed circle. If you contaminate the environment, it is basically going to come back to us and we're going to have doctors like this telling us what the health effects are again. So to separate them out is a good thing to do as far as figuring out what the effects are, but it shouldn't be overplayed.

Senator LAUTENBERG. Is it fair to say that there is an economic impact as a result of the elimination of species, the story in the far west with soil erosion resulting from excessive timber cutting, and the loss of jobs in salmon fishing as well as the nutritional value of the fish themselves and adequate supply? Is that a continuing experience that we can point to in order to say that it is not going to happen if we don't take care of things?

You have heard the debate between jobs and ecology, jobs and environment, in fact, in the example I just referred to, it is very obvious that thousands of jobs were lost in the salmon business in the far west as a result of abuse of the ecology. Are there studies being done, to your knowledge, that expose this information or give the public adequate information as to the consequences of not protecting the environment?

Mr. KODJAK. There are no studies to my knowledge, and I think there certainly should be. In fact, that is an interesting point you raise as to how many jobs are lost due to environmental degradation and what the real costs are of environmental degradation. I know in Europe and Denmark they actually have an index of environmental degradation as part of their gross national product. They try to factor in the environment as one of their natural resources.

We don't do this in America and perhaps we should. Maybe that is one of the things we can look into. That is a very important factor that is not factored in right now.

Senator LAUTENBERG. Is the Superfund program effective in protecting the environmental concerns you have raised?

Mr. KODJAK. I think there is a trend now to take them more into account. When the program was first getting started, the primary focus was on protecting human health. Environment was secondary not only because human health was obviously more important but also because it is more difficult. There are so many other receptors and factors to take into account when you're talking about an ecosystem.

There is a trend that has been coming on over the last 4 or 5 years now where each region will have what they call a B-tagger, or biological advisory group. They review each of the decisions that are gone through when you have a site. They look for environmental effects and impacts and try to assess them. Also, the hazard ranking index has been reprioritized to take into account more environmental impacts.

So the program is becoming more sensitive and aware of ecological impacts, but more work needs to be done in that area.

Senator LAUTENBERG. I thank the three of you. It has been excellent testimony. It is good to see you.

Now we will hear from the next panel, which is Mr. William Muszynski, Commissioner Scott Weiner, Mayor Joseph Vas, and Mayor Bruce Ware.

Gentlemen, we are delighted to have you. Just as you may have heard if you were here for the beginning of the hearing, this is the start of a review of Superfund, as far as I am concerned. We are going to be looking at the reauthorization of Superfund taking place over perhaps the next 2 years. This is a program that has had many detractors, but it has also had many, many supporters.

If you see the examples of where the work has begun, it is going on on a daily basis and you see some very hopeful signs. We are trying to look at this State—my State—where there is such a high occurrence of Superfund sites, plus the non-Superfund little toxic sites around the place—Commissioner Weiner and I have done a lot of work in this area together—and to see what it is that presents problems to us, what are the health hazards, et cetera.

There are those who say that we can't go back to the early days of nature when things were not contaminated by man's presence, by the industrial revolution that developed so much here in our State. But before we give up on that, I think we ought to be examining fully what the consequences might be if we don't take care to eliminate these conditions wherever present. There is hardly a doubt that there is significant risk to exposure to these contaminants and these pollutants.

We are delighted to have you. Commissioner Scott Weiner has done so much work on behalf of the environment in this State. We are particularly proud of the job that he has done because he cut his teeth in the Lautenberg office before he did this. If there is anything that is going to sharpen your teeth, it is working for Lautenberg.

[Laughter.]

Scott has done a wonderful job and has enlisted a lot of support among not only those who have been active supporters, but also some of the skeptics who question whether or not we ought to be as vigorous in our pursuit. Scott Weiner has an ability to see where improvements can be made and not just to pursue old habits because they are there, but also to be in a constantly dynamic mode as he is looking at the situation.

Scott, that entitles you to a couple extra minutes of testimony. We are delighted to see you and ask you to be first among the witnesses.

STATEMENT OF SCOTT WEINER, COMMISSIONER, NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION AND ENERGY, TRENTON, NEW JERSEY

Mr. WEINER. Thank you very much, Mr. Chairman. It is good to see you again and members of your staff. I can tell you as somebody who has spent a little bit of time in Washington now in my new incarnation that not only you but your staff has developed a reputation which causes people to pay attention and to roll up your sleeves and work with them. But I think that through your efforts we are going to have an opportunity to begin a study that is very important.

I have submitted detailed testimony to you. I am going to summarize it and annotate it a little bit for the purposes of highlighting the discussion.

As you point out, over the last several years Superfund has been much maligned as a program. Really, my concern is that those criticisms, while valid, miss the point. They tend to obscure the benefits that have come out of the program. Also, as we approach reauthorization, I think it is critical that we all be willing to step back and say that we have a lot more experience. We're a lot smarter than we were in 1986, the last time reauthorization was tackled, and we're a whole lot smarter than we were in 1980 when the program first came into effect.

And things have changed. There have been two significant changes since 1980 that all successes need to be judged against. First, there are a lot more sites than anybody had conceived 12 or 13 years ago and sites of all types, all of which demand remediation. In New Jersey alone, there are 1,500 some odd sites that are part of the evaluation system of the Federal program. All of us in New Jersey are wrestling with tens of thousands of sites that need to be addressed in terms of remediation.

This brings us to the second significant change which is that there are more State programs around, States that are able to contribute very effectively to this process. As you pointed out, I want to endorse in no uncertain terms the Superfund program is responsible for a great deal of success and a great deal of remedial work taking place in New Jersey.

Unfortunately, most people attempt to measure that success by the number of sites that are completed. That becomes a measurement. If you take a look at the pie chart that your staff has put together, we see that only 4 percent of the 113 sites have been completed. However, I think there is a much greater story to tell that sometimes gets lost. If you will indulge me, I am going to look at my own chart, which is part of the formal testimony.

I would like to bring to your attention the green areas. In New Jersey, we have taken the 113 sites—and this is true elsewhere around the country, not just in New Jersey—and we break it up into sub-sites, sometimes called operable units. So we have 300 some odd sub-sites that are comprised of the 113.

When you take a look at no further action or monitor, we see that 48 percent of the sites are really in their final stages. Something has taken place and it may be some remedial work that frankly is going to go on for a very long time under the remedial program, but that work is done. We are overseeing it. The State or the responsible parties are conducting it. We are as close as we are going to get to completion at that point in time. We have another 7 percent of the sites which are in construction and which will very shortly be entering into that final stage.

We have used this chart before and we have found that sometimes people look at this and say that only one-third of it is done. They just look at this. Over 50 percent are in construction or the final stages. So when somebody asks me where New Jersey is in terms of cleanup and completion on the NPL sites, I point out that we have over half that are completed for all intents and purposes. It paints a completely different picture. But again, that is tens of thousands of sites that we need to wrestle with here in New Jersey.

Over the years, New Jersey has received $957 million from the Superfund program, putting our State at the top of the list of recipients of Superfund dollars. Since the inception of the program, New Jersey has received more Federal Superfund dollars than any other State.

People sometimes ask why that is, and there are obviously two reasons. One is that we have a lot of sites. But the other is that we have been very aggressive, as you know, in identifying those sites and getting them listed and getting them cleaned up. The assistance that your office has provided and the working relationship with EPA has turned that into a reality.

Of that $957 million, $750 million has been expended on actual construction activities. The other $250 million has been spent, for the most part—an overwhelming amount—on studies, on doing the work that is necessary to get the construction work done. Again, all too often, the debate evolves into legitimate concerns about transactional costs, the cost of fighting your way through the program. That is a real problem. That is a problem I know you are sensitive to and one that hopefully can be addressed during reauthorization. But the point I want to make is that the Federal dollars go where they are supposed to be going, which is into study, construction, and cleanup. It is not being spent on all these other costs.

Unfortunately, those transaction costs can be a drain on the private economy. Somebody is spending those dollars.

The other point I want to make is that those costs we found to be in large part in municipal facilities—particularly municipal landfill facilities—that find their way to the list because of all the issues that you are aware of concerning liability, ongoing liability, and the whole municipality. It becomes even more subject to litigation than any of the other subsets of these issues. But the dollars are going where I think the dollars are expected to go.

The Superfund program we have found has also been a very effective support mechanism for our overall efforts in New Jersey. During the 1980s, Superfund and other State cleanup programs were characterized as Government agencies spending inordinate amounts of time trying to force responsible parties to conduct remediation at contaminated sites.

However, during the latter part of the 1980s, and surely in the past few years, we have all seen that that approach has begun to shift. In fact, the number of remediations conducted by private parties began to increase due to, among other things, the underground storage tank programs, laws like New Jersey's ECRA law, the interests of lending institutions, and also the innovative voluntary cleanup programs we have instituted in New Jersey that hopefully will become a Federal program with your help in the not too distant future.

The New Jersey program and the Superfund program I think can point to success for a number of reasons. I want to briefly identify those. I tried to think why our experience in New Jersey might be different than some other States and other regions.

First, the State was very aggressive in the early years in identifying as many NPL sites as we could in securing funding to get them remediated. Second, we have what I would describe as a very good working relationship with EPA both at the regional level where the real work is done and at the headquarters level where the policy is created and the guidance is initially generated.

I understand that in later sessions you will be delving into the role of States and the EPA partnership relationship. I will save my comments for that time, but as you know, I Chair the Superfund Policy Forum where we are working with the Administrator and other State commissioners to try to tackle these issues during the reauthorization period.

The third factor I would like to point to is that New Jersey has a highly developed cleanup program. That highly developed program, when intermeshing effectively with EPA, can avoid unnecessary delays, but most importantly, we have resources that we can bring to the table and begin to effectively define how the Federal resources and State resources can best interact and not be duplicative of each other.

And finally, we have the benefit in this State of a very strong and active citizen participation and citizen coalition. Our State residents, we have found, are some of our best resources in ensuring that the work is completed in a manner that is going to maintain public confidence.

On some occasions, those citizen groups have taken issue at the Federal program. They have taken issue at my department and our program. Sometimes they are wrong and sometimes they are right. But I can tell you again unequivocally that we couldn't do the job we're doing without their active support and participation. It is a very important part of the whole universe of activity that allows cleanup work to go ahead.

I don't want to give the impression that everything is perfect in the Superfund program. I think New Jersey has a very good story to tell, but I want this point to have two or three areas that I think are worthy of particular attention over the coming months. As I mentioned, over the past 12 years, we have all become a lot smarter. We shouldn't be defensive about that. We have learned more. We have seen things that we didn't see 12 years ago.

I am very encouraged by your work, Senator, because I know you're going to be promoting and providing a forum for national debate on some issues that must be wrestled with if we're going to maintain public confidence in the program. I would like to respectfully point out two or three of these areas, then I will be available for questions.

First, Superfund by its very nature is a program which seems to invite litigation. There will always be litigation and there will always be significant Administrative costs. But again, I think that has to be put in perspective and I think we have opportunities where we can begin to lessen those burdens on the economic resource of our country as a whole.

One idea I would like to suggest for the purposes of discussion in the future is that the Federal Superfund program shift its focus to contaminated sites where responsible parties are unknown, unwilling, or unable to conduct the necessary remediation. This shift, I believe, would result in a decrease in litigation and provide for a more efficient use of public funds and private resources. Right now, nationally, 70 percent of the Federal effort in the Superfund program as a whole is expended where we have a responsible party or PRP doing the work itself and EPA overseeing that.

I am not saying that there shouldn't be oversight of that activity, but I think as a matter of Federal policy, if we shift that to an area and say that we're going to put money on the table as a national Government in order to make sure that orphan sites, as we describe them, can be remediated, that that will better direct our resources.

Second, the Superfund program as a whole is lacking a clear definition of how clean is clean. Of course, the Superfund program isn't alone in that lack. It is something from which we all suffer. But I do know, Senator, that we have been trying to tackle that question here in New Jersey. I am not suggesting that the Superfund reauthorization process should address specific risk assessment criteria. I think that is really a topic for another venue, another piece of legislation.

Nor am I suggesting that EPA develop national cleanup standards. I think differences in geology, depth of groundwater, average rainfall, et cetera, would make that impossible and would collapse of its own weight no matter how noble the effort.

However, I do think it would be a good idea to set national risk management policy in Federal law. I want to stress that as national risk management policy in Federal law. Again, as you and your staff know, we in New Jersey have been wrestling with this issue in the context of cleanup standards developed first by the Department and more recently in legislation that has now cleared the State Senate. That legislation in the process of passing it through the Senate provided a forum for debate as to what the risk level should be.

How can we ensure the citizens of our State that all citizens as a whole will be subjected to or protected to the same level of risk as everyone else and break away from very site-specific determinations that are made that again, because of their very nature, we are debating the risk levels at every single site? You can create not just theoretical anomalies where two sites right next to each other might have different risk levels because of separate analyses that are taking place.

Again, that is something that we won't necessarily address today, but I would invite that as a topic for another discussion.

Finally, I would like to suggest that Congress explore the substantial differences that exist among Superfund, RCRA, and the UST cleanup programs. Each of these Federal programs operate under separate guidance. Until 1991, we in New Jersey operated much the same way. We, of course, operate on a much smaller scale. But we took all those cleanup programs and we recognized them as a single universe of public policy. We have to find a way to integrate them.

I would suggest that the Superfund reauthorization process may be a forum to begin to discuss that in bringing continuity and true integration into the various Federal remediation programs to make sure that we have a national cleanup strategy and a national cleanup policy, not just one that applies to Superfund, debate it all over again in RCRA, and debate it all over again in the UST program.

In summary, let me conclude by saying that although the Superfund program has been the subject of much criticism, some of it is deserved and much of it undeserved. But most significant to me, that criticism sometimes ignores the tremendous successes that are occurring right here in this State. I would say again unequivocally that the quality of life in this State would not be at the level it is at were it not for the Superfund program and the investment of public resources in that area. We should take advantage of this opportunity to learn our lesson and figure out how to make the program even more effective as we go forward.

Senator LAUTENBERG. Thank you very much, Commissioner Weiner.

We will hear now from Bill Muszynski. Bill is the acting regional administrator for the EPA and someone we have had an opportunity to work with and has done an outstanding job. We are happy to have you with us and ask you to summarize your testimony.

STATEMENT OF WILLIAM MUSZYNSKI, ACTING REGIONAL ADMINISTRATOR, U.S. ENVIRONMENTAL PROTECTION AGENCY, NEW YORK, NEW YORK

Mr. MUSZYNSKI. Thank you, Mr. Chairman.

I think the commissioner has summarized a lot of what is also in my testimony, but I would like to restate that I hope in reading not only my testimony but the few remarks I make here that you will identify—I think we recognize that this program has had an exceedingly slow start for the first 7 years. I think Scott has gone over a few of the reasons for that. But I think over the last 7 years, as some of these charts will show, we have made significant progress, primarily in going from a program that focused on study and stumbling through that process of trying to identify how to cleanup these sites to one that now represents 74 percent of the sites in New Jersey being in either the design or the construction or the completion phase. I think that is a significant piece of progress.

Nationally, that percentage would be about 66 percent of the sites.

These sites also represent both ecological as well as public health risks. We feel that they are being addressed. All of the NPL sites and some of the non-NPL sites are reviewed with actions taken to address immediate risks—either health or ecological—where we can identify it.

These reviews were established as part of the 90-day study, with which I am sure you are familiar, under Bill Reilly, and they continue today. We review basically half of our sites each year and we report to Washington, D.C. as to any actions that were taken to either address or identify any risk that may have occurred during that period.

The emphasis on enforcement program has clearly resulted in a major shift in the program. Responsible parties last year alone picked up 72 percent of the cleanups that were identified. In New Jersey, obligations and settlement represents about $1.4 billion in total money. On enforcement settlements, about $400 million of that. So while we are somewhat lagging in terms of the national percentage overall, I think the emphasis——

Senator LAUTENBERG. What is the national percentage overall?

Mr. MUSZYNSKI. It is about 40 percent, roughly.

If you look at just last year's figures, that would be about 72 percent.

I think we also have to recognize that there are sites that we have in New Jersey that are orphan sites and don't have responsible parties. To a certain degree, Montclair would fall into that category. It is an extremely expensive cleanup and certainly one that has health implications that we need to address and are continuing to address.

So those numbers we believe represent a shift to getting responsible parties to pay. But it also represents something even more importantly that we are now identifying the cleanup measures. Therefore, I think the responsible parties are willing to come in and take on that responsibility now that they know what is being expected of them.

The program's success is one that I think Scott mentioned is not clearly a function. I think we made a mistake early in that process of believing that these sites could be cleaned up very quickly. Again, there are a variety of reasons for that. To me, the pipeline is extremely important and I think the chart that is up there on the 113 site shows that we now have only 29 of those sites in the study phase. That means that the pipeline has clearly again shifted and you're in the design and construction and construction and maintenance with the final remedies to protect the public.

I think finally we recognize the need to constantly analyze, refine, and streamline the work in the process so that we can not only increase the speed in which we act, but reduce costs.

I am not going to go through a lot of the statistics. The commissioner has already referred to those. Clearly, though, as I tried to point out, it is not necessarily how much money we obligated to these sites—whether Federal funds or responsible parties—but actually getting into the construction phase, getting those remedies implemented, and reducing that risk.

On a site-specific example of what I would classify as a success story, it shows something that we have begun to use over the past 2 or 3 years and will further use under this program called SACM, which is a combination of a removal and remedial actions. This site went from identification to us by the State where we cooperated with them on an immediate action to stabilize the site—there were 11,000 barrels, drums, that were at the site, several hundred cylinders. They were in disrepair. The sides were bulging and ready to blow, in essence.

We quickly got to that site, used what we call Quicklist, listed the site on September 25, 1991. We signed a ROD on September 26, 1991 because we had our removal and our remedial people—two parts of the Superfund program—work together to identify what had to be done for surface cleanup. We knew that the site would cost in excess of $20 million to cleanup. We could not handle that under the removal program, but we identified the site, listed it, picked the remedy, and produced a report that in less than 3 years the surface cleanup has been completed at that site.

We got $10 million of Federal funds and we also got responsible parties to contribute another $10 million plus to certain parts of the removal.

As I mentioned before, all our sites on the NPL are reviewed at least every other year to identify any changes that have taken place that would present an immediate risk. If we identify those, we can use the removal program to move in quickly and resolve those risks.

The SACM project we have begun to move on. This goal is to make Superfund cleanups more timely and efficient. I think we are using that program and there have been additional funds identified in the President's budget to do that.

So while we recognize that there are problems and concerns that will continue to linger at these sites, we also believe that significant progress has been made.

Senator LAUTENBERG. Thank you very much, Mr. Muszynski.

I am glad to have Mayor Joe Vas here from Perth Amboy here. He has an experience we would like to review here. I invite you to give your testimony, Mayor.

STATEMENT OF HON. JOSEPH VAS, MAYOR, CITY OF PERTH AMBOY, NEW JERSEY

Mayor VAS. Thank you, Mr. Chairman, for the opportunity to share the hard lessons we have learned in Perth Amboy over the past 20 years. It is my hope that we will learn from the lessons of the city of Perth Amboy's watershed so that no community will have to learn these same hard lessons. There is something for everyone to learn from this experience—the State, the Federal Government, other municipalities, and hopefully the industries who have been found liable for contaminating one of our Nation's greatest natural resources, drinking water from pristine groundwater sources.

My names is Joseph Vas and I have served as the mayor of the city of Perth Amboy since 1990. I am not an environmental expert. I am a citizen who likes to drink clean water and an elected official who is responsible for the quality of the drinking water provided to over 50,000 people in two municipalities.

The city of Perth Amboy's drinking water supply has been contaminated for over 20 years. The city's drinking water supply is derived from pumping the groundwater located in the 1,200 acre Runyon Watershed. The Runyon Watershed is the city's source of drinking water and consists of two aquifers located beneath the city's property in Old Bridge Township. The municipally operated water treatment and distribution system has been in operation since the 1890s.

As you know, in the 1960s, Madison Industries and CPS Chemical located their chemical processing facilities adjacent to the aquifer that supplies the city its drinking water and along Pricketts Brook, which is just upstream of the city's well field and water works. In the early 1970s, contamination was discovered as a result of complaints from city residents about the color and taste of the city's drinking water. Investigation by city officials and the NJDEPE led to the shutdown of a number of production wells and in 1973 the NJDEPE directed the city to discontinue use of the entire line of 32 production wells.

After 15 years of inaction on the part of the industries, what started as a limited groundwater problem has spread, posing a potentially devastating threat to Perth Amboy's drinking water supply. The presence of volatile organics and heavy metals, chlorobenzene, and zinc in the city's water supply is a major concern to the city in light of the fact that its water treatment plant does not have a system in place to treat volatile organic compounds or metals. The city's ability to provide quality drinking water that meets all safe drinking water standards is threatened by the spreading plume of contaminants.

The willingness of the industries to provide a treatment system capable of protecting the city's water supply is seriously questionable, and yet without such a system the city may be forced to permanently shut down its drinking wells. The State's willingness to pay for such a treatment system has been tempered by its desire to have the industries pay for the cleanup costs directly.

As a result, about 16 months ago, in November of 1991, the city sought the USEPA's assistance and assurance that if the industries were not forthcoming with an interim treatment system the USEPA would be willing to provide such a system through the Superfund program. The city received the USEPA's assurance that it would install a new series of monitoring wells closer to the city's well field to determine how far the contaminant plume had spread and how high the levels of contamination had risen.

In January of 1992, the USEPA installed this monitoring system and collected data for several months. The sampling revealed that although the level of volatile organics was rising they had not reached levels which permitted the USEPA to take immediate action with the resources of the removal action program.

The city felt that it was trapped in a no-man's land with the resources of both the State and Federal Government just out of reach and the resources of the industries securely tucked away. However, 1 year later, in April of 1992, after the city felt it had exhausted all efforts to speed the installation of interim treatment for the threatened drinking wells, it returned to Superior Court for assistance in asserting its rights and protecting its drinking water.

The legal history is long and complex. There have been millions of dollars spent by all parties in this matter. Almost every cleanup time line set within a court order has been ignored by the industries. Financial assurances that the court ordered the industries to post have been withheld until recently. Within the last 8 months, one industry, CPS, posted the financial assurance required under court order. The other industry, Madison, balked and has filed for bankruptcy.

Originally, in 1977 the industries were sued for contamination of the Runyon Watershed by both the city and NJDEPE, seeking damages, penalties, and mandatory injunctive relief ordering CPS and Madison to capture, control, and remove these pollutants before they contaminated the city's remaining sources of drinking water. After a trial in the New Jersey Superior Court, a decision was rendered in 1981 establishing that Madison and CPS were liable and responsible for the cleanup of the site.

All parties appealed this decision, and in 1983 the Appellate Division issued a decision which affirmed the cleanup plan outlined in the 1981 court order but removed the fixed dollar amount for the cleanup and held the industries to be jointly and severally liable for all current and future cleanup costs. The 1983 court order was not implemented by the industries. Instead, the industries hired an environmental engineering firm to develop and propose an alternative groundwater recovery program to NJDEPE.

In conclusion, I would like to thank Senator Lautenberg and the members of this subcommittee for recognizing that Perth Amboy's experience is one that we can and should learn from. No community should be doomed to repeat this experience. The saga of the Runyon Watershed, however, is not over. The industries continue to raise concerns about cost and technical matters to delay the inevitable construction of remediation measures.

I can assure you that the city will continue to be aggressive and treat this issue as one of its highest priorities. I implore you to consider that the Runyon Watershed can become one of the USEPA's success stories for the 1990s. It need not be cited as an example of the failure of the 1980s.

Thank you very much.

Senator LAUTENBERG. Thank you very much.

Mayor Ware, we are glad to have you with us. We have shared some moments together. We looked at the work that is going on. I hope that we will be able to look back one of these days and say that the work is done and that the site is fully cleaned up, but there is a lot of progress certainly underway at this point.

STATEMENT OF HON. BRUCE WARE, MAYOR, BOROUGH OF PITMAN, NEW JERSEY

Mayor WARE. Thank you very much, Mr. Chairman. I represent Pitman. It is a small borough in southern New Jersey. I am the mayor of the town.

Lipari's history has been well documented by prior testimony before this committee. Briefly, to bring everyone into focus, Lipari, a former sand and gravel pit, is located on the border of our 1-mile square community of 9,800 residents. It is not within our community. It is within the boundaries of another communities.

From the late 1960s until 1971 over 3 million gallons of toxic chemicals were dumped on site. During a period of about 13 years, we experienced about 110,000 gallons per day of leachate which moved through the watershed down through the lake, which is in fact in the borough of Pitman, which is our major natural resource that is located there.

Community activism jumped in and drew attention to our plight and the real battle to clean the Lipari dump was joined. The EPA and Superfund were viewed as adversaries, not allies. Subsequent meetings were often contentious. Pitman was treated, in our opinion, as an entity to be tolerated and dictated to by a series of EPA regional directors and site managers.

All was not lost. Thousands of hours were spent by citizen volunteers and unpaid political officials in Pitman. The net result was education. We made many friends in the legislative community and we began to approach the problem in an orderly and intelligent fashion. Superfund's technical assistance grant Pitman received in 1988 gave us a much need translator and commentator to guide us through the very problems we face on an every-day basis.

A local advisory committee of concerned citizens, our TAG advisor, and Pitman council members was formed to guide our efforts. Constructive communication with EPA and positive exchange of ideas developed.

We have moved forward under Superfund. An open line of communication exists with EPA. The on-site cleanup is within days of a first full-scale utilization of a fully constructed on-site state-of-the-art batch-flush facility. The marsh, feeder streams, and Alcyon Lake cleanup is about to enter the bidding process. Public information sessions and one-on-one meetings with residents have been held over the course of years. Weekly phone conferences update borough officials. Emergency management plans have been developed and tested with the full cooperation of all parties.

The flip side is that all has not gone well. Many delays have been experienced and time tables change monthly. Bureaucracy has been frustrating and confusing. Just recently, a misinterpretation of a contract resulted in a mid-stream change in management on site. Settlement negotiations with polluters have put the off-site cleanup into a dangerous limbo. A time line, again interrupted, hopefully less than 6 months, but it appears that it will be 6 months to a year stretched out further.

Time is the key to many problems. Public confidence is quickly eroded by frequent and lengthy delays. Streamlining the Superfund process and close coordination among EPA, Justice, and Corps of Engineers should be a goal of any Superfund improvements. Money, personnel, and materials allocated quickly on the Superfund site will get the job done.

Superfund is a much needed ally to our community. The existence of a toxic site is a physical, mental, and financial burden to Pitman. Our tax base is totally unable to support the efforts needed to address the situation. The coordination of new and emerging technologies and their application to Lipari are obviously mind-boggling. Recapturing monies expended from polluters who are frequently recalcitrant, is totally beyond our means. Our initial investigation into recovery of damages to Pitman, cased by Lipari, presumed the expenditure of front money for lawyers and experts well in excess of $250,000, which to many towns doesn't sound like much, but when you have a small area like Pitman, that is a lot of bucks, with more dollars, many years of litigation to add on top of that.

Health risk analyses and coordination is multi-faceted, expensive, and time consuming. Without Superfund, that is impossible. Pitman would be swamped in a sea of bureaucracy, facing an impossible task. Our financial commitments, time demands on local volunteers, the ever-increasing demand for expert analysis, and the coordination among jurisdictions would leave Pitman powerless. Superfund must continue.

I thank you for your time.

Senator LAUTENBERG. Thank you very much, Mayor.

There isn't a town I can think of—large or small—that would consider $250,000 as an insignificant sum. Look at some of our large cities and you will see the financial stress they are going through. There is hardly a place exempt as less and less funds become available.

We are happy to hear that Superfund has some value and that it is at work. If you look at the statistics, it is a fairly impressive array. Obviously, there is a great deal of impatience within the community. People don't want to hear about reasons for delay—legitimate or otherwise.

The fact is that we are at a much more rapid pace today that we used to be. A large part of that is experience. Another significant part of that is the concern and the nervousness with professionals, skills that are not easily obtained, that take years in terms of education to develop, that suddenly might have been either jobless or programs terminated. It does cause an anxiety that I think could be pointed to as a significant reason for slowness if not stoppage of programs.

The period between 1985 and 1986 was when the first authorization of Superfund came to an end. The program was begun in 1980. During that 5-year period, we had $1.6 billion devoted to cleanup. The second phase had $8.5 billion devoted to cleanup. But we couldn't start on day one, even though the funds were authorized, because we had lost a lot of people—and I didn't blame them at all for looking for a more reliable source of employment, even though there is a great deal of satisfaction derived from public service.

Certainly each one of you has other things you could be doing with your time that might be more remunerative, but at the same time, here you are doing these things because you know that what you do is important. You are no different than the people who work in Washington who want to do their job, but they need the tools and they need some of the longevity.

So a large part of that, unfortunately, was delay caused by learning, by staffing, but I think we are now on a much different track.

If you look at the experience, particularly in the recovery and settlement area—that has gone up exponentially, really, from the earlier days—but we still have a lot more to do. We cannot rest on our laurels, certainly.

I wanted to ask a few questions here.

Scott Weiner, the first panel testified that there are significant health and environmental risks posed by Superfund sites. Do you have any problem with their conclusions as you heard them?

Mr. WEINER. No.

Senator LAUTENBERG. Does the present Superfund law adequately protect against these risks?

Mr. WEINER. The simple answer is yes, but more can be done. Let me try to respond in terms of an operational experience.

One area that needs a lot of attention—and this is an area where I think your leadership has begun to make a difference—is in the area of environmental ecological risk. It is an area that needs to be wrestled with. We all talk about protection of human health and the environment. But the reality is that we all need to learn a lot more on the issue of environmental risk. That is an area that could use some shoring up.

So the program works as best it can, given our current state of knowledge. There is a second fear in operation and that is that the program, through all its lumbering, puts people at unnecessary risk. I think that overlooks the operation of programs today that deals with the Federal removal program, which goes into identify immediate risk to human health and the environment as best we can measure it and respond to that immediately. Time and time again, that has occurred.

So even in our most dire cases here in New Jersey, we can all be comfortable that the program is able to respond to eliminate that risk immediately. Again, it has taken sometimes too many years to get the job done for the reasons that you articulated, but what also gets lost is that through the removal program the EPA identify risks and get them attacked.

Senator LAUTENBERG. Often, when you alert the public to the fact that there is a health risk, many times they come to Government with that knowledge before Government recognizes it. But once having been identified, there is a tendency to think of these things in terms of, let's say, a fire in a building. Why can't you just throw water on it and chemicals and stop it? But this is a fire more akin to the type you have seen smoldering in the coal fields in some of our States, fires that were begun years ago.

We had a situation in Jersey City, as everyone knows, where the fire burned for years. These are very much more complicated. I am not making any apologies for the program, but the fact is that we have a very, very complicated process. As both mayors know—one mayor knows that it was too darned slow and the other mayor knows that not only was it slow but also there was a considerable difference on how exactly you solve the problem, even relatively recently.

The questions that arise. Are we spending too much money on toxic waste cleanup in New Jersey? I think you said it Scott, that trying to provide a national standard for cleanup is a difficult problem.

However, I am not sure that one couldn't find a significant share of the standard as being common throughout the country. But not many States have the kind of dependence that we have on groundwater to supply our needs.

How about these factors in terms of whether or not we spend too much money? Have we analyzed the problem sufficiently? Can we get to the end of the mission in terms of toxic waste cleanup in the State of New Jersey? Or what else might be needed?

I am not talking about a detailed review of the program.

Are we essentially on the right track with what we're doing?

Mr. WEINER. Yes, I think we are on the right track. Rather than asking if we have spent too much or enough money, I think the question you had us focus on was whether we are spending the money the best we can. We talk about spending money appropriately over the past few years and we also talk about relative risk and trying to take a look at relatively limited public resources and any private resources and decide how we're going to attack that.

One of the exercises that I like to take people through is to say that if you take a look at risk ranking you sometimes find that contaminated land is not being put as high on the list of risk as others. I suggest that if you tell that to a mayor or the family that lives next door it, and often our real legitimate human desires exceed—and appropriate demands—exceed even our knowledge. So if you say to somebody what they think one of the expectations of society should be, they want to be able to drink their water. A threatened groundwater supply literally strikes at everybody's home and demands very prompt action.

The program is complicated, but the reality of that complication is no less real than the fear and anxiety that we all see and that you have seen. We need to find a way to reconcile that better and reconcile our ability to respond to that. I think that can be done in a number of ways. One is one of the paths that you are taking us down, which is to begin to look at the Superfund program and see how we can best use the Federal dollars.

I think some of the lessons learned over the years has been that we can put those dollars into remediation and we can put that into cleanup. There are States that have good active programs. We need to link up with that and we need to provide certainty to people who are going to be doing the cleanup and to the community. The community will come up with an answer, and there are always trade-offs.

Another thing the Superfund program can do in the future—and this is no criticism—is to find ways to make those choices, either in terms of national risk policy, as I mentioned earlier, or through the vehicles that we have learned the hard way here in New Jersey of bringing the community in as an active part of this process.

Again, we're not always going to agree, but neither should either side have the lack of confidence that the communities sometimes get.

Senator LAUTENBERG. That gets to a fundamental question about the funds being spent. I, for one, am a very strong supporter of soliciting community view. That is why we have the TAG grant. I personally am responsible for that being in the law.

Bill Muszynski, you have administered these programs in a very dynamic condition. Do we spend enough money on these programs to get the cleanups that we want? Are there sufficient funds directed that way to do it?

Mr. MUSZYNSKI. I think the answer to that is yes. We do need to spend this money. There is no question about it, although we obviously have to constantly review and make sure that we are using the proper technologies and looking for ways to make the cost of the cleanups cheaper.

But my concern is that you would have to change the focus. If we go to a program that only is containment and just put some dirt on top of it and watch it to see that it doesn't go anywhere, then you are going to drastically reduce the cost of the program. What you are doing is leaving a legacy down the road and you're not cleaning up the environment. You might even be able to contain some of the groundwater, but you're not cleaning it up. I think that is part of it. We have addressed billions of gallons of contaminated groundwater with this type of program already.

So if the question is simply if we need to spending it, these cleanups are expensive. I think some of the information that was provided to you from the earlier panel about the risks—not just to the public but also to the people cleaning these sites up—is most dramatic.

I know that a lot of times people will look at our staff when they show up in their moon suits and equipment and ask why that is. These people are constantly exposed, site after site.

Senator LAUTENBERG. It is very helpful to hear your comments because one of the things—I used the analogy of a fire, which people understand readily. They understand the health risks to firemen. If that needs confirmation, all you need to do is look at the statistics on fire fighters' health in the past. I have tried to help them so that there is an awareness of what you're doing. Some of that awareness has to be put out into the community because it can look like it doesn't matter. But if people understand the potential risks, everyone wants to protect their family's health. But if it is too far removed—like radon gas—finally radon is now understood as being very threatening.

It is not different in many ways to smoking. Everybody did it and nobody really focused on the health issue and look at what we have had to do to alert the public to the health risks of smoking. It took enormous effort to elevate that to the awareness level it is at today.

This requires a lot more, but isn't there in some measure an economic opportunity accompanying this? In this State, with the precious little land that we have and the quality of life that we seem to really strive for in the State of New Jersey—whether it is our seashore, our hills, and our small mountains to the west, the Pinelands in the south—people really want to be able to pass on to their children a habitable Earth and to be able to enjoy nature.

So we fight like the devil for it. As a result of that, is there a possibility of creating additional economic opportunity by ridding ourselves of these toxic waste sites by making the land available for either industrial, residential, or recreational commercial use? That pay-back will obviously return in the years ahead if we can convert these to usable lands in the community.

Mr. WEINER. Absolutely. And certainly that is something all of us at the table have worked on. That is a point worth stressing.

Every now and then we all get sucked into the economy versus environment debate. You mentioned it before in your remarks. As you know, we in New Jersey try to look at that as irrelevant because you're not going to get the economic growth and you're not going to get the economic opportunity unless we address these sites, not just because you can't do anything on these properties, but because after awhile people are going to say that the whole issue of quality of life begins to get addressed. It has a multiplier effect in the negative.

If we are going to make a commitment to economic opportunity, we by definition make a commitment to cleaning up contaminated sites.

We used the analogy before of a fire. One of the other things is that you know when it is out. You can see when it is out. One of the problems in the cleanup programs in this country is that we have as a society asked people to fund a cleanup, which they often can't see, to a level that we never define. That begins to create sometimes the delays, sometimes the uncertainty, and sometimes quite frankly the bureaucratic black holes that the program is subject to. These are issues that can be addressed now.

You and I toured a number of sites in New Jersey which we hopefully will be able to replicate around the country in terms of inviting, making it possible for the private sector to come in and voluntarily cleanup their program. Again, I think it is important for us to think beyond the scope of Superfund because Superfund has become synonymous with Federal cleanup programs.

How are we going to get properties cleaned up? Who is going to pay for it? What is the role of the State and the Federal Government?

We can get economic opportunity occurring. We can get people to invest in their properties. We can get real growth occurring. Every now and then people like to count jobs that are created in the cleanup industries, which is important. That is something which Governor Florio has made an investment in.

But that is just the tip of the iceberg of opportunity. You and I were at sites in Hudson County, Essex County, and elsewhere where there will be real jobs occurring and real economic growth occurring because through a public/private partnership we made it possible for people to cleanup properties and turn them into engines of economic opportunity.

I won't talk forever today about New Jersey's experience, but as you travel around the country, you will find that there are lots of laboratories of innovation occurring in the States that we can be tapping into.

Senator LAUTENBERG. Very much so.

I was with Vice President Gore in Rio with a few other Senators and organizations at the Earth Summit. We ran headlong into a disagreement with then President Bush who saw only problems in dealing with our environment as opposed to opportunity that so many others saw. One startling piece of information was the fact that there was a time in America when we used to make 70 percent of the pollution control equipment now down to 30 percent. So there is an economic opportunity that just went past us while other countries became very aggressive, saw that there was a consistency between environmental cleanup and economic opportunity.

That is the way these things ought to be viewed. It is too bad that it is often one side against the other. New Jersey has done a splendid job, to the governor's credit, in terms of trying to define what amounts to increased economic opportunity in association with a better quality of life and at the same time with decent environmental cleanup.

Both of you mayors described long and complicated processes for cleanup. Based on your experience, if you had to give me a short form review, what do you think the Superfund program might have to improve its efficiency from the local perspective?

Mayor VAS. To use Perth Amboy as an example of how money should not be spent, clearly in the industries and the city of Perth Amboy, the State and Federal Government has spent a lot of money over the last 20 years, really not to bring about very little action at the Runyon Watershed. I think that has given us an example of a lesson to be learned about the strict deadlines that have to be imposed, the fact that municipalities have to be part of the communications mechanism. We must know what is going on. We have to be actively involved if we are going to support Superfund or the State and maintain a level of confidence with the public.

And last but not least, I don't think there should ever be a case where the industries are put in charge of the cleanup, as in the case of Runyon. Primarily, most of the money they have spent has been to delay the cleanup of Runyon rather than to invest in the cleanup of Runyon, which is what was ordered. That is the most valuable lesson we have learned and we must make sure it never happens again.

Senator LAUTENBERG. Mayor, if there is a bad example there, that ought not be the cause for throwing the baby out the window with the bath water. Rather, we have found that getting some of the companies involved in the cleanup early on with their knowledge that they are at risk, that delays cost them money, incomplete processes cost them money, that litigation to follow will cost them money, that instead of getting on with the cleanup process—that is the message we are trying to get across to the responsible parties. Get on with it and stop fooling around.

Though it will cost the poor little municipality—and I don't care whether it is the biggest or the smallest—the fact is that there is no municipality that manages to conduct itself with its present source of revenues. Litigation is going to ultimately cost a lot of money.

There are areas where we can tighten up, but I think it is possible that if the responsible party is given the right benchmarks and the right yardstick by which they get measured, then to get them involved they often will figure out they are dealing with these materials and have dealt with them. They know the problems that result if they are mishandled.

Mr. WEINER. I think we have all learned a lot of lessons there. One of the lessons that we as a department took out historically is that the courtroom is not the place to fight all the remedies before they are implemented. This litigation started many, many years ago. The judicial system just isn't geared up for that. We had court orders that everybody would celebrate and say that we now had an order that would direct the company to do something. Then we found out that the problem is even greater than we thought.

History shows that they are not ready to roll up their sleeves. The courtroom can be a shield for them.

So one of the lessons that we have taken from this and have begun to implement is that we will work with PRPs and discuss cleanups. They do have insight to bring to it, but there comes a time when we draw a line and either they are going to clean it up or we are going to clean it up. We will still fight about remedies and we are still willing to defend as a public entity your choice of remedies, but we are going to do that while the work is being done and not make the work wait for that.

Here the initiation of the litigation early on when everybody thought that was the way to go proved to be counterproductive.

Mayor **Vas**. I think in the case of Runyon unfortunately there was a balancing act. They were trying to balance the cost of the cleanup and who was going to do it. Ultimately, the cost was so great that everybody wanted the industries to do it, but they never had any intention of doing it. Their intentions were to go into court and take the cheaper route, which was to fight it through litigation, and they were successful in doing that for 20 years.

So ultimately the deadlines have to be imposed and the resources of the State and Federal Government have to be invoked when there is a situation like Runyon because there never should be another Runyon. It is really a glaring example of how a Superfund site should not be handled.

Mr. **Muszynski**. I think one of the things we have also learned is that perhaps the responsible parties are more adept at saving the time and the money at the tail end of the design and construction phase. When it comes to remedy selection, we tried to be more careful over the past few years as to which ones we would allow to go forward on the study. There can be delays in that portion whereas if we go in and do the study and select the remedy, then they know the benchmarks that we are holding against them. I think they can move much quicker than the State can on that process, and that is where the bulk of the money is.

Senator **Lautenberg**. Bruce, what do you think, if you could crystallize an idea for us on how Superfund gets improved?

Mayor **Ware**. Obviously time is the key to everything because problems from a local official's point of view is that our citizens can't leave the fire. They can't walk outside and watch the firemen do their work. My people on one street looked in their backyards to see people with these spacesuits on. The spacesuits went home at night and cleaned up and went to a different community and moved on. At the same time, we as local officials, are trying to explain to these people that things back there aren't as bad as spacesuits seem to indicate.

That disparity between the reality of the problem—the cleanup, the spacesuits, and a person who can't read who sits there in the middle of this conflagration—is really where the frustration is built up in a local community. Answering that from a Superfund point of view really gets right to the point. Streamline it and set the guidelines. We are moving now into the cleanup of Alcyon Lake. We thought we were right on a time line and we were going to get these things done, and now the PRPs want to come in and talk about settlement.

Now it goes to Justice and Justice sits there and plays with it. They talk back and forth. We are no longer in the system, we feel, communicative-wise. We don't know what is going on. We are sitting in our community and people laugh at you.

If you can maintain time lines and move forward in a responsible manner, you will get public support. Anybody understands time as long as they see work being done.

Senator LAUTENBERG. Continuing the fire analogy, if one is on the 20th floor of a multi-story building and the first two floors are on fire, then it is quite comprehensible as contrasted to perhaps someone down the block where threats exist a few hundred feet away and they don't quite see it the same way as the person on the higher floor when the fire is burning downstairs. Unfortunately, that gets the attention very quickly.

I want to ask Commissioner Weiner and Bill Muszynski your views on legislation that has been introduced in the past year by members of the New Jersey delegation to the House. You have looked at it.

Mr. WEINER. One addresses bankruptcy protection issues. Simply stated, the question is whether PRPs should be able to use bankruptcy to shield against cleanup obligations. I think we would all say unequivocally that they should not. There are lots of debate as to what should and should not get the protection of bankruptcy. I think when we deal with the remediation of cleanup of a contaminated property, we will all agree as a society that this is among the highest and best uses of public resources.

So bankruptcy should not be used.

The other one seeks to address the issue of risk assessment at Superfund sites. I will defer to Bill, but let me make the observation that whatever value the legislation may have, it seems to indicate that these types of risk assessments aren't taking place—which I think is untrue because they are taking place—and that risk, particularly human health risk, is not being addressed. Let's not take away the validity of the concept.

Mr. MUSZYNSKI. We feel that as part of the 90-day study we did set up a program where we will look at each one of our Superfund sites at least once every 2 years at a minimum. So in a sense we feel that we do have a process in place to do that. Albeit, that is a policy decision the agency made a few years ago.

Senator LAUTENBERG. Was there a risk at the Caldwell Trucking site that became enlarged as a result of not performing the risk assessment? Or was EPA or DEPE on top of that such that—is there a need to put this into legislation?

Mr. MUSZYNSKI. At the Caldwell site, I would have to say that we were somewhat on top of it. However, the circumstances allowed, in a sense, the plume to continue to get to the river. We don't believe it is creating an immediate risk. I don't believe that the legislation proposed would change that set of circumstances. We did select a remedy that would go in and pump and treat the groundwater.

Some of the plumes still probably would have reached the river. There were other plumes in the area. We found out as we were designing the process that the complexity of the fractured geology in the area made it more difficult. We also ran into situations where the public, who supported the remedy, felt that once we were going in and potentially locating wells and properties—they were not exactly supportive of that phase. So we had to go back and not only redesign relative to geology, but also to address the community concerns about where these particular wells would be located.

Senator LAUTENBERG. I take it that what we're saying here is that this is now a routine part of the process and that further legislative honing isn't going to prevent a situation like this from taking place, and that it is part of the ordinary routine that says that assessments are being done regularly as these sites are reviewed?

Mr. MUSZYNSKI. That's correct.

Senator LAUTENBERG. Do you want to respond to Commissioner Weiner's comments about the bankruptcy protection?

Mr. MUSZYNSKI. The agency hasn't reviewed that particular legislation. The only thing I can say at this time is that it is not my experience that the site itself is the one that pushes them into the bankruptcy. It may be one of the many liabilities that address it. Some of the concerns that we have occasionally are whether or not there is sufficient funding put aside by even operating companies to address a situation that may arise.

For instance, if you have closure costs set aside at the end of your job at a particular site, that usually addresses a well-maintained and well-operated site. When you run into a white chemical, it is very rare that that type of money is sitting around for proper closure.

But I am going to pass until the agency has had a chance to review it.

Senator LAUTENBERG. I think it is fair to say that one of the most obvious obstacles to getting these jobs done is the time lag. We heard it from the mayors. And we also heard some other comments that would help us to think about as we review reauthorization.

Have the mayors' viewpoints and presentations taught you anything about what we have to do to get on with the program and to make it more efficient? Certainly for me, even though we may have read about it, these are not new things. The fact is that when we hear it directly, it is always a little bit of a better reminder about what has to be done in order to make these programs work.

Anything in particular?

Mr. WEINER. I think as we mentioned this morning, there are a number of lessons to be learned from these experiences. I think we would all like to think at the State and Federal level that we are beginning to address them. But the message that comes out is one that could be taken away, which is the issue of public confidence.

There needs to be public confidence in the whole program and in State and Federal responses to problems. Sometimes, actions at other governmental levels have done more to erode that confidence unwittingly and unintentionally. Delays can do that, but when we don't do a good job communicating, it exacerbates the problem.

I think it was Mayor Ware who said that everybody understands time, but you have to be informed about it. I think we all know about that in our lives.

There are ways to make the program more efficient. I think EPA deserves a lot of credit for its efforts in the past. But we need to learn lessons from there and begin to codify it into law.

Again, as I mentioned in my earlier remarks, we need to rethink the purpose of the Superfund program. What is it that we want it to achieve? What are we going to do with the $8 billion of our money that we're putting on the table? And how does that intermesh with 50 different State models and provide the flexibility for everybody?

There are a lot of lessons to be learned: don't litigate remedies; have very clear standards so that everybody knows what the rules are; be very firm; be ready to pull the trigger, if you will, to use public resources to cleanup a problem; but most of all remember that we need the public's confidence as we implement any of these programs.

Mr. MUSZYNSKI. I would echo that, especially in the sites where I have been directly involved. We have sat down with the public and brought them in and explained the problem, gone through the technical side of it, gone through the legal side of it, and had them really involved in the process. Even where we have run into site delays, I think there has been a greater appreciation and a greater understanding of why those delays are necessary.

And while I think we all share a frustration of not getting these sites cleaned up faster, at least when you work with the community at that level, they understand why the delays are occurring and were more appreciative that it wasn't just the bureaucracy that didn't put any importance on their particular site.

Senator LAUTENBERG. I thank all of you.

One of the themes that we have to remember as we go through the process is that we in fact has allocated substantial resources to this in the Federal Government. If we take the 3 years since Superfund II expired and the continuation of the revenue—the tax—we are looking at another roughly $4.5 billion that has been available, plus the original $10 billion, $8.5 billion, and $1.5 billion—in rough terms—but when you think about what we spent to try to acquire public lands to make it available for public use, this is not an insignificant amount of money by a long shot. But relative to that, it is a fairly small sum.

The one thing that stresses me as I look at the Federal side of the legislation is, What happens when States are trying to seduce companies from other States? The offer that is often made is not to worry about the environmental stuff, that they aren't quite that fussy, et cetera, et cetera. It sure would be interesting to ask some of the citizens who might be nearby how they view it.

Also, that is the kind of desperation tactic that is just not becoming a federated society. After all, we are part of the same country. Contamination is something that we will be protecting against no matter what. People are aware of it now. Superfund is one of those programs which fix what we have done.

We thank you very much. This is the kick-off of a game that will take some while. We are looking at renewal of Superfund and want to understand it fully as we try to restructure the Superfund to become more efficient in the years ahead.

I thank all of you for your testimony.

This hearing is adjourned.

[Whereupon, at 12:20 p.m., the committee was adjourned, to reconvene at the call of the Chair.]

[Statements submitted for the record follows:]

STATEMENT OF JEFFREY LYBARGER, M.D., DIRECTOR, DIVISION OF HEALTH STUDIES, AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY, PUBLIC HEALTH SERVICE, U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

Good morning. I am Dr. Jeffrey Lybarger, Director, Division of Health Studies, Agency for Toxic Substances and Disease Registry (ATSDR). I welcome this opportunity to come before you today to brief you about the adverse health impacts associated with exposures to hazardous substances released from Superfund sites or from emergency releases. In doing so,I will emphasize our activities in New Jersey.

The creation of ATSDR as a Federal agency resulted from the Comprehensive Environmental Response, Compensation, and Liability Act, or what is more commonly known as "Superfund" legislation. Congress generated this legislation as part of its response to two highly publicized and catastrophic events of the late 1970's: discovery of the Love Canal waste site in Niagara Falls, New York, and an industrial fire in Elizabethtown, New Jersey, which set off the release of highly toxic fumes into the air in a densely populated area. The public was concerned then, and now, that the release of hazardous substances will cause adverse health effects in persons exposed to released substances.

Since 1986, ATSDR has accumulated a considerable body of information about the presence, release, and effects on human health of hazardous substances released from Superfund sites and from emergency releases, e.g., from transportation mishaps or industrial accidents. Overall, the Agency has conducted public health assessments of about 1,200 Superfund sites, provided several thousand consultations on matters of health and hazardous substances, developed a comprehensive toxicological database on hazardous substances, instituted a National Exposure Registry for three priority substances with two more planned, established a surveillance system with the Laborers International Union of North America for monitoring the health of site clean-up workers, developed a surveillance program that reports the occurrence of emergency releases of hazardous substances, provided training and education to physicians concerning hazardous substances, initiated substance-specific research to fill key data gaps in our knowledge of the toxicity and health effects of priority substances, and started a program of work targeting the effects of hazardous substances on minorities and persons of color. I will be pleased to answer any questions about any of these programs.

Over the past six years a considerable amount of information bearing on the effects of hazardous substances on human health has resulted from ATSDR's efforts. However, notwithstanding our efforts and that of others, there are major gaps in our knowledge of the relationships between human health and hazardous substances released from Superfund sites. One of the major gaps is the general lack of knowledge about levels of exposure experienced by persons near Superfund sites. Human levels of hazardous substances are offen unknown or not easily reconstructed. Additionally, for many communities concerned about their health, the numbers of persons at potential risk of exposure are small, thus making epidemiological comparisons quite difficult. Another problem is the lack of toxicology data on such health endpoints as immune function and the nervous system. However, even with these considerable difficulties, ATSDR and others have accrued a considerable amount of information bearing on the health implications of Superfund sites.

ATSDR has identified a growing body of information which characterizes human exposures to hazardous substances in the environment. This concern for long-term exposure to low levels of hazardous substances to a large number of persons nationally is well exemplified by our experience in evaluating hazardous waste sites in New Jersey. In addition, and our greatest concern, is the growing evidence that a greater burden of adverse health effects may be occurring in some people living near hazardous waste sites. ATSDR's review of the published scientific literature, together with our first-hand contact with states and communities impacted by hazardous waste sites, leads us to conclude that releases trom some waste sites may be, in some manner, associated with a small but increased risk for developing adverse health effects.

I would first like to describe our characterization of the potential for human exposure to hazardous substances in the environment. The 1986 Superfund Amendments expanded our responsibilities in several areas. However, the most significant added responsibility was the provision calling for a public health assessment at each of the National Priorities List (NPL) sites. This one provision, far greater than any other, allowed ATSDR the ability to provide a consistent and critical review of all the NPL waste sites and provide a comprehensive assessment of human exposures to hazardous substances, make site-specific health related recommendations, and determine the need for health education and epidemiological studies.

In addition, we were also given responsibility for determining which substances posed the greatest health hazard and for writing toxicological profiles for each of those substances. This increased our ability to determine which sites may pose the greatest hazards to human health by having the enhanced capacity of an organized review of the toxicities of the most hazardous substances related to Superfund hazardous waste sites. As a consequence of writing these profiles, we were also charged with determining where there were major gaps in information about the health effects of these substances, and for establishing an applied research agenda to fill the most critical information needs.

Perhaps the most pressing of the mandates deals with conducting public health assessments at abandoned hazardous waste sites. Since 1986, ATSDR has completed more than 1,500 public health assessments impacting an average of 1,900 people at each site. One-hundred thirty six of those public health assessments were conducted at 115 sites in New Jersey. These assessments are an evaluation of data and information on the release of hazardous substances into the environment to:

- assess any current or future impact on public health,
- develop health advisories or other health recommendations, and
- identify studies or actions needed to evaluate and mitigate or prevent human health effects.

Many of ATSDR's public health assessments are done under cooperative agreement by state health departments. Currently, ATSDR funds New Jersey and 21 other states (covering approximately 80 percent of all NPL sites) to draft public health assessments which are then reviewed and approved by ATSDR staff. This partnership with state health departments enables us to greatly increase our output while at the same time strengthening needed expertise in the states.

The ATSDR public health assessments have allowed us the ability to learn a great deal about the consequences of living near abandoned, hazardous waste sites in New Jersey, as well as other states. An analysis of public health assessments conducted on all sites last year indicates that there was a potential risk for human exposure to site-related contaminants in approximately 80 percent of the sites. In New Jersey, 94 percent of the sites had the potential for human exposure to site related contaminants. ATSDR considered one site to be an urgent public health hazard and issued a public health advisory to the Administrator of the U.S. Environmental Protection Agency. An additional 23 sites had a completed pathway of potential human exposure. These sites were considered to be a public health hazard.

Of the 115 sites in New Jersey, 111 or 96.5 percent are on the National Priorities List sites. Seventy-seven, or 67 percent of the sites are privately owned; 13 or 11.3 percent are owned by a municipality; and 5 or 4.3 percent are the responsibility of a Federal agency. One site is owned by the state of New Jersey. Filty-five or 47.8 percent are waste storage/treatment facilities; 29 or 25.2 percent are manufacturing facilities, and 9 or 7.8 percent are waste recycling facilities. The remaining facilities are mining and government facilities.

ATSDR also has been able to make important observations about the types of contaminants found most offen at NPL sites, including those in New Jersey; the environmental media that are most affected by those contaminants; and the pathways by which people are exposed to contaminants. Through the public health assessments at the sites in New Jersey, we have learned that the most commonly occulring contaminants and the percentage of sites at which they occur are industrial solvents called volatile organic chemicals (VOCs) and heavy metals. The most common VOCs found contaminating groundwater and human drinking water are trichloroethylene (TCE) found at 64 percent of the sites, benzene at 52 percent of the sites and, toluene at 50 percent of the sites. The most prevalent heavy metals are lead found at 63 percent of the sites and chromium at 50 percent of the sites. Of the 24 sites of major concern, TCE, and some other VOCs, were contaminates at 17, or 70 percent of these sites, and lead was a contaminant at 14 of these sites. Although these are the most commonly encountered contaminants, thousands of different chemicals can be found at hazardous waste sites.

Once hazardous substances are discovered at a hazardous waste site, it is critical to understand how they are being released from the site and whether and how humans may be contacting these hazardous substances.

Through the public health assessments we have learned that the two most frequently contaminated media for the sites in New Jersey are soil and groundwater. Groundwater was found to be contaminated at 108, or 94 percent of the New Jersey NPL sites, and this contamination contributed to documented or possible human exposures at 47, or 40 percent of the sites. For the 24 sites of major concern as public health hazards, groundwater contamination was a principal pathway of human exposure in 20 of the 24 sites. VOCs were the principal contaminant at each of these sites although heavy metals, principally lead, were also present.

When water is contaminated, ingestion is frequently a major concern. In 24 percent of the sites, oral ingestion was a route of exposure of concern. However, especially with VOCs, water contamination may create human exposures through inhalation and dermal absorption. Contaminated water in the home can cause volatilization, or offgassing, of VOCs from water used for cooking, dish and clothes washing, or during the flushing of toilets. Although no single event constitutes a great concern, each contributes to the low-level, chronic exposures to these chemicals. Of singular importance is the use of VOC contaminated water for bathing and showering. Bathing can allow for dermal absorption and be another important source of VOC vapors. Studies at the University of Pittsburgh have documented substantial volatilization of VOCs during a single shower. There is evidence that human exposure through water has occurred at levels of public health concern.

Contaminated soil was also found to be a concern for the New Jersey NPL sites. Surface and subsurface soil was found to be contaminated at 77 percent of the New Jersey NPL sites and was considered a media for potential human exposure for at least 54 of the sites. Soil contamination is an important concern for human exposure. It is difficult to control and can be a component of human exposure for ingestion and, to a smaller extent, inhalation. Volatile organic chemicals, heavy metals, as well as a variety of other hazardous substances may be contaminants of soil.

Ingestion of soil is a special concern for children. Studies of lead contamination through soil have documented that children between 6 months and 6 years of age are especially prone to soil ingestion because of their natural tendency for hand-to-mouth behaviors. This natural tendency for children to place objects into their mouths places them at risk for greater exposure to hazardous substances such as heavy metals contaminating soil on those objects.

Generally, information about how the public is exposed to contaminants in New Jersey is consistent with the national trends. In the public health assessments for sites in New Jersey where people were reported as having been exposed to a medium, the most common routes of exposure were ingestion (24.3 percent), inhalation (20.6 percent), and dermal (17.6 percent). For all sites nationally, ingestion, inhalation, and dermal contact were also the most frequent routes of exposure for people known to have been exposed to site-related contaminants.

The public health assessments review information from 3 sources. I have informed you about our review of environmental information that is collected to characterize the site and the potential public health concerns. The other two types of information reviewed by ATSDR are available health information and community concerns. Community concerns are critical to ATSDR. We obtain these expressions of concern from our very informative and important discussions with health officials and residents living near the waste sites. For the health assessments done in New Jersey, nearly all of the sites had some expression of health concerns by some member of the public. Of these concerns 49 percent of the sites had concerns related to noncancer adverse health effects and 52 percent of the sites had concerns related to cancer.

The final factor considered by ATSDR in evaluating NPL sites is available health information. Although ATSDR commonly evaluates this information on a site specific nature, I will present it in a manner that will assess the concerns for adverse health effects that may result ffom the exposures that have been characterized by the ATSDR public health assessments in New Jersey and throughout the nation. Through studies conducted by ATSDR, either independently or through our partnership with States, and by others, there is a growing body of knowledge which defmes a concern for adverse health effects related to long-term, low dose exposure to hazardous substances.

I would like to describe the studies and health activities supported by both ATSDR and other investigators regarding the adverse health effects of VOCs.

ATSDR has supported an important health study in New Jersey. The study was conducted by Dr. Frank Bove, while with the New Jersey Department of Health and currently with ATSDR, and it was published in December 1992. The study evaluated reproductive outcomes related to public drinking water systems serving 75 towns in northern New Jersey. Hazardous waste sites were thought to have been among several sources of contaminants in the water supplies. All live births and stillbirths (excluding chromosomal defects and plural births) born during the period 1985 through 1988 to residents of the 75 towns were included in the study. The towns selected were not known to have excessive health problems.

Information on birth outcome status and maternal risk factors was obtained from vital records and the New Jersey Department of Health Birth Defects Registry.

Exposures during each month of pregnancy to drinking water contaminants were estimated for all births in the study using sample data for the public water system serving the town of maternal residence at time of birth. Contaminants evaluated included total trihalomethanes; trichloroethylene; tetrachloroethylene; total dichloroethylenes; carbon tetrachloride; and 1,2-dichloroethane. Although some water systems had levels of certain contaminants above Federal standards at the time of the study, the study area was not considered to have contamination levels that were atypical of other areas in the U.S.

For live births, the outcomes evaluated were birth weight among term births, low birth weight (<2,500 grams) among term births, intrauterine growth retardation, prematurity (<37 weeks gestational age), and very low birth weight (<1,500 grams). For all births, selected birth defect categories were evaluated.

Significant associations were found for the following:

(1) Total trihalomethanes were associated with term low birth weight, intrauterine growth retardation, central nervous system defects, and major cardiac defects.
(2) Trichloroethylene was associated with neural tube defects and oral cleft defects.
(3) Carbon tetrachloride was associated with term low birth weight, intrauterine growth retardation, central nervous system defects, and oral cleft defects.
(4) Tetrachloroethylene was associated with oral cleft defects.
(5) Dichloroethylenes were associated with central nervous system defects.
(6) Dichloroethane was associated with major cardiac defects.

Since contamination levels in the drinking water supplies serving the 75 towns were not exceptionally high, the findings of this study are applicable to most other areas in the country. Although these findings are not sufficient in themselves to prove causation, from a public health perspective these associations should be taken seriously. ATSDR is currently funding the New Jersey Department of Health to follow up this study.

ATSDR supported an additional important study on this topic with the California Department of Health Services. They conducted a study to investigate the relationship between maternal residence and the presence of hazardous waste sites for the risk of congenital malformations. The study evaluated births between 1983 and 1985. During this study 5,617 births with congenital malformations were evaluated. The study concluded that maternal residence at the time of the child's birth, in a census tract with a hazardous waste site, significantly increased the risk of giving birth to infants with malformations of the heart and circulatory system.

A similar study has been recently conducted in New York. In 1992, Dr. Sandra Geschwind linked 2 data bases in the New York Department of Health to evaluate the relationship between congenital malformations and residential proximity to hazardous waste sites (*American Journal of Epidemiology* Vol. 135, No. 11, pg. 1197). This study of 9,313 newborns with congenital malformations in proximity to 590 hazardous waste sites in 1983 and 1984 concluded that maternal proximity to hazardous waste sites carries a small additional risk of bearing children with congenital malformations. As with the New Jersey study, the authors warned of the need for additional studies before causal relationships could be determined.

A final study, which was published in 1990, with findings consistent to the 3 studies previously described was a study of cardiac congenital malformations in Tucson, Arizona (*Pediatric Cardiology* Vol. 16, No. 1, pg. 155). In this study, Dr. Stanley Goldberg reported that the proportion of cases of congenital heart disease among live births was significantly greater for mothers who had residential exposure to the contaminated water area than mothers whose first trimester exposure was limited to the uncontaminated portion of the Tucson valley. The exposure of concern was VOCs, especially trichloroethylene.

VOC chemicals, especially trichloroethylene, have been evaluated for other adverse health effects. ATSDR established a trichloroethylene subregistry of the National Exposure Registry. The trichloroethylene subregistry consists of 4,522 living and 254 deceased registrants Uom 13 locations. Analysis of the baseline data for the registrants has been recently completed by comparing the self-reported health conditions of the registrants with responses of persons participating in the National Health Interview Survey conducted by the National Center for Health Statistics of the Centers for Diseasp Control and Prevention. A number of adverse health conditions have been reported at a higher rate by the registrants. At this time, ATSDR does not know the reason for the higher rates of some adverse health conditions. Follow-up studies are planned which will evaluate possible explanations such as exposures to hazardous substances, other factors related to illness occurrence, and the manner in which the questions were worded. ATSDR expects to be able to inform the registrants of these findings in the near future and will make the reports public once the registrants have been notified.

In addition to health studies, ATSDR is conducting a number of health activities which will assist us in obtaining and understanding community health concerns. One example in New Jersey is a grant to the borough of Pitman, New Jersey, to support the residents in establishing a voluntary tracking system (i.e., a system developed and maintained by the community). The nearby Lipari landfill is ranked first on the list of NPL sites.

The voluntary residence tracking system will identify present and past residents who may have been exposed to air contaminants emanating from the landfill. Initial inquiries were sent to 1,389 participating households in the area with a 77 percent return rate.

Several other studies are also in progress. In August 1990, ATSDR also awarded a grant to the New Jersey Department of Health to conduct an expanded study of low birth weight for communities near the Lipari landfill. This study will build upon one already begun by the New Jersey Department of Health and will include data for the years 1965–69 and 1975–79. This project was completed in 1992, and a final report is expected in 1993.

In 1992, ATSDR funded an additional study with New Jersey to evaluate the relationship between neurological congenital defects (neural tube defects) and drinking water contaminants. In addition, studies designed to evaluate the relationship between adverse health effects and proximity to hazardous waste sites were funded with the California and New York Departments of Health.

A key partner of ours has been state health departments. One main purpose of our support to state and local health departments is to improve how health agencies respond to community health concerns. I refer to communities around Superfund sites and other areas of pollution. Their legitimate health concerns need the coordinated response of government at all levels. ATSDR believes that communities around Superfund sites are our primary constituencies.

ATSDR has benefitted from advice and guidance from the state and local health departments on matters of toxics in the environment, and I believe the state health departments have been able to improve their relationship and play a larger role with their state environmental protection partners on matters of risk assessment and public health interventions. The result is better decisions on environmental health risks and attendant risk management actions.

We have also continued to strengthen our focus on community involvement as an integral part of conducting our activities. During the past year, ATSDR personnel made contact with approximately 8,000 members of communities near hazardous waste sites. This was done through convening 5 meetings of community assistance panels, 18 public meetings, 34 public availability sessions, and 6 small group briefings, as well as other community involvement efforts.

Community Assistance Panels have been found to be an effective means of fostering communication between ATSDR and site communities. A community assistance panel has three primary purposes: 1) to facilitate communication between ATSDR and the affected community; 2) to provide an ongoing series of community-based meetings to ensure community involvement throughout the public health assessment process; and 3) to provide information to ATSDR on the community's health concerns for inclusion in public health assessments and health studies.

ATSDR also is increasing its use of public availability sessions-informal, drop-by meetings at which community members can meet one-on-one with ATSDR staff to discuss health and site concerns. Other site-specific community involvement activities that we have found useful include small group briefings for key community leaders, a practice that enables ATSDR to solicit information from grassroots leaders about how best to interact with their constituents and to address their concerns, and to provide up-to-date information about ATSDR activities in their community. For example, a citizen's advisory group was formed for the GEMS Landfill site here in New Jersey. Meetings were held between community members and the New

Jersey Department of Environmental Protection and Energy. Community concerns regarding odors and fire were addressed in the site's Construction Operations Plan.

In summary, ATSDR has acquired a great amount of information over the past 6 years on the associations between human health and exposure to hazardous substances from waste sites and from emergency releases. There is now information which describes how human exposures to hazardous substances may be occurring and a growing body of information that a greater burden of adverse health effects may be occurring among some people living near hazardous waste sites. ATSDR will continue our site-specific evaluations and other health studies to further evaluate whether these adverse health effects may be related to the release of hazardous substances into the environment. The vital business of conducting the health studies and other scientific investigations to characterize the public health impact of environmental hazards must be continued. We look forward to sharing information with the Congress during this and future hearings on Superfund.

Mr. Chairman, this concludes my testimony. I will be pleased to answer questions.

ATSDR

Agency for Toxic Substances and Disease Registry

Program Activity for

New Jersey

Statewide Activities

Public Health Assessments

National Priorities List Sites - ATSDR is mandated by CERCLA to conduct public health assessments at all National Priorities List (Superfund) sites and at other sites where there may be significant threat to the public health. Public health assessments are written evaluations of available data and information on the release of hazardous substances into the environment in a specific geographic area. The evaluations are used to assess any pertinent past, current or future impact on public health. The state of New Jersey has assisted ATSDR with the development of public health assessments at most of the NPL sites in the state. See the Cooperative Agreement segment following and Table A (page 10) which lists the 136 evaluations of New Jersey sites to date.

Petitioned Sites - A petitioned public health assessment is conducted at the request of a member of the public. All information pertaining to the petition is presented to an ATSDR screening committee, which determines whether there is a reasonable basis for conducting a public health assessment. A total of ten petitions have been received from New Jersey:

Public Health Assessments (continued)

Petitioned Site name	City/County	Pet.Rec'd	Decision	Status	Petitioner ID	NPL
Atlantic States Cast Iron Pipe	Phillipsburg/Warren	03/16/88	Other	Hold	Lawyer	No
Borough of Hawthorne	-/Passaic	09/15/88	Accept	Active	Lawyer	No
Borough of Maywood	Maywood/Bergen	09/24/92	Pending	Hold	Pub. Official	Yes
Bridgeport Rental and Oil Service	Bridgeport/Gloucester	04/17/87	Accept	Final	Citizen	Yes
Buzby Bros. Landfill	Vorhees/Camden	07/08/89	Accept	Final	Citizen	No
Edgeboro Landfill	-/Middlesex	10/11/91	Other	Hold	Pub. Official	No
GEMS Landfill	Gloucester/Gloucester	06/29/87	Accept	Final	Lawyer	Yes
Global Landfill	Old Bridge TWP/Middlesex	11/11/88	Accept	Draft	Lawyer	Yes
Pompton Lakes	Pompton Lakes/Passaic	04/25/91	Accept	Active	Pub. Official	Yes
Target Research	Dover/Morris	02/03/92	Pending	Hold	Citizen	No

Health Consultations

Health consultations are written or verbal responses from ATSDR to a specific request for information about health risks related to a specific site, chemical release, or hazardous material. Since 1989, a total of 109 ATSDR health consultations have been documented in New Jersey. (See Table B, page 13)

Public Health Assessment Cooperative Agreement

Public health assessments are written evaluations of available data and information on the release of hazardous substances into the environment in a specific geographic area. The evaluations are used to assess any pertinent current or future impact on public health. ATSDR currently has cooperative agreements with 22 states to build capacity for conducting public health assessments. The state of New Jersey was one of the original recipients in 1987. Through this cooperative agreement, the state of New Jersey has assisted ATSDR with the development of public health assessments at most of the NPL sites in the state.

Funding (FY 1988-1992): $1,578,603 through cooperative agreements.

Health Professionals Training

Environmental Health Information Clearinghouse

In FY 1991, the National Governors' Association (NGA) initiated a pilot project to determine the feasibility of establishing an environmental health information clearinghouse. Under the ATSDR/NGA cooperative agreement, NGA operated a state environmental health information clearinghouse as a pilot project for 6 months. Eight states formally participated (California, Connecticut, Florida, Maine, Minnesota, New York, Ohio, and Wisconsin). NGA collected a variety of materials from the eight states and combined them with other state information for a total of 80 clearinghouse items. Lists of these items were then distributed to the 8 pilot states and an additional 10 states (Iowa, Missouri, New Hampshire, **New Jersey**, North Carolina, North Dakota, Rhode Island, Texas, Virginia, and Washington), which then received copies of materials upon request.

Association of Occupational and Environmental Clinics

ATSDR provides financial and technical support to the member institutions of the Association of Occupational and Environmental Clinics throughout the nation. This support is provided to improve educational and communication activities related to surveillance, diagnosis, treatment, and prevention of illness or injury related to exposure to hazardous substances. There is one participating institution in the state of New Jersey:

Environmental and Occupational Health
Clinical Center
Environmental and Occupational Health
Sciences Institute
UMDNJ-Robert Wood Johnson Medical School
P.O. Box 1179
Piscataway, NJ 08855-1179
Contact: Howard Kipen, MD, MPH
Gail Buckler, RN, MPH, COHN

Health Studies

Health studies are investigations of potentially exposed persons which are designed to assist in identifying exposure or effects on the public's health. Health studies also define those health problems which require further inquiry through, for example, a health surveillance or epidemiologic study. The following are the health studies and investigations that ATSDR has conducted or supported in the state of New Jersey:

Case Control Study of Neural Tube Defects and Drinking Water Contaminants (1992-1995)

The New Jersey Department of Health was awarded a grant in September 1992 to further test associations observed in the recently completed study, *Effects of Exposure to Toxic Waste on Reproductive Outcomes (1986-1992).* This newly funded study will test hypotheses of association of neural tube defects with maternal exposure during the first trimester to several classes of drinking water contaminants. Cases will consist of all births, including stillbirths, which occur in New Jersey within a two-year period beginning on or about February 1, 1993 identified as having a neural tube defect. Controls will be selected from a random sample of births concurrent with the cases and will be matched to the cases on sex of child and race of mother. This study will involve interview and measurements of pertinent environmental parameters at the residences of subjects. The data will be collected within a few months after the births of the cases and controls.

Funding (FY 1992): $243,688 for the initial budget year.

Effects of Exposure to Toxic Waste on Reproductive Outcomes (1986-1992)

From 1986 to 1992 ATSDR supported, through an Interagency Agreement with the Centers for Disease Control and Prevention (CDC), the surveillance of reproductive effects of toxic waste pollution in New Jersey. This included performing epidemiologic studies of environmental impacts on reproduction.

One such study was that of reproductive effects of drinking water contamination, which was published in December 1992. The study focused on public water systems serving 75 towns in northern New Jersey. All livebirths and stillbirths (excluding chromosomal defects and plural births) born during the period 1985 through 1988 to residents of the 75 towns were included in the study (N = 81,532). The towns selected were **not** known to have excessive health problems.

Contaminants evaluated included total trihalomethanes (TTHM); trichloroethylene (TCE); tetrachloroethylene (PCE); total dichloroethylenes (DCE); carbon tetrachloride (CTC); and 1,2-dichloroethane (EDC). Although

Health Studies (continued)

some water systems had levels of certain contaminants above federal standards at the time of the study, the study area was not considered to have contamination levels that were atypical of other areas in the U.S.

For livebirths, the outcomes evaluated were birth weight among term births, low birth weight (<2,500 grams) among term births, intrauterine growth retardation (IUGR), prematurity (<37 weeks gestational age), and very low birth weight (<1,500 grams). For all births, selected birth defect categories were evaluated.

Statistically significant associations were found for the following:

1. TTHM with term low birth weight, IUGR, central nervous system (CNS) defects, and major cardiac defects;
2. TCE with neural tube defects and oral cleft defects;
3. CTC with term low birth weight, IUGR, CNS defects, and oral cleft defects;
4. PCE with oral cleft defects;
5. DCE with CNS defects; and
6. EDC with major cardiac defects.

Exposure to TTHM was also found to decrease birth weight among term births.

Since contamination levels in the drinking water samples serving 75 towns were not exceptionally high, the findings of this study are applicable to most other areas in the country. While these findings are not sufficient in themselves to prove causation, from a public health perspective these associations should be taken seriously. ATSDR is currently funding a grant to the NJDOH to follow up this study **(Case Control Study of Neural Tube Defects and Drinking Water Contaminants)**.

Funding (FY 1986-1992): Approximately $1.25 million in reimbursable Interagency Agreements between ATSDR and CDC. ATSDR funded the program; administrative and support services provided by CDC.

National Dioxin Morbidity Study (1985-1993)

This dioxin morbidity and reproductive study began in April 1985 by the National Institute for Occupational Safety & Health, CDC to determine whether workers exposed to dioxin-contaminated materials experience unusual or excessive persistent morbidity. The study involves about 500 former employees of a plant in Newark, New Jersey, and 100 former employees of a plant in Verona, Missouri.

Methodology involves the use of questionnaires and medical examinations of the workers and the comparisons, and telephone interviews of wives to ascertain reproductive histories. To date, the evaluation of the relationship between serum TCDD levels and selected demographic and personal characteristics of study participants has been completed, an analysis of peripheral nervous system data has been completed, and analysis of pulmonary data is progressing. A final report is expected in 1993.

Funding (FY 1985-1992): ATSDR supported this study through a reimbursable Interagency Agreement with CDC/NIOSH.

Community Health Investigations Around the Lipari Landfill Site (1992-1993)

The Borough of Pitman was awarded a cooperative agreement in September 1992 to continue a previously developed database, (discussed below) which includes residential history and household demographics of (1) current residents of the four towns surrounding the landfill and (2) former residents of the most highly exposed area. The grantee will expand the database by identifying others who lived near the site during the years of highest exposure. Health information will be obtained by means of a mailed and self-administered questionnaire and by interviews.

Funding (FY 1992): $50,000.

Lipari Voluntary Residents Tracking System (1990-1992)

The Lipari Landfill is located in Mantua and bordering Pitman, Glassboro and Harrison. It is ranked number one on EPA's National Priorities List. Hazardous leachate migrated from the landfill into two nearby streams and a lake in the vicinity of residences, schools and playgrounds. The Lipari Landfill operated from 1958 to 1971.

Operation of the landfill ended because of residents' complaints regarding odors, respiratory problems, headaches, nausea and dying vegetation. Remediation activities at the site are underway.

By congressional mandate ATSDR awarded, in September 1990, to the Borough of Pitman a grant to create a database of names and addresses of people residing in the areas of potentially significant exposure from the Lipari Landfill Site during the time period in which the exposure was the highest. The grant was awarded to support the community in establishing a voluntary residence tracking system (i.e., a system developed and maintained by the community). The voluntary residence tracking system will assist in identifying present and past residents who may have been exposed to air contaminants emanating from the Lipari Landfill. Specific objectives are to create a database of those individuals who resided at least one year in the area during the period 1967-1984 and who voluntarily enrolled in the VRTS, to develop a mechanism for outreach and information, and to locate former residents for specific outreach efforts.

Funding (FY 1990-1992): $170.500

Lipari Birthweight Analysis (1990-1992)

In an initial study conducted with state resources, the New Jersey Department of Health (NJDOH) examined cancer data reported to the NJDOH Cancer Registry between 1980-1984, and analyzed data on birthweights of newborns delivered to mothers in the vicinity of the landfill during three 5-year periods: 1961-65, 1971-75, and 1981-85. The NJDOH health study, released in 1989, found statistically significant associations between birthweight and potential exposure to hazardous waste materials during the early 1970's when chemical dumping was thought to have been the highest.

A U.S. House of Representatives Appropriations Committee report (HR 101-297) called for "an expanded study of low birthweight for the communities near Lipari Landfill that would build upon a study already begun by the New Jersey Department of Health (NJDOH) and to include (the ten intervening) years."

Health Studies (continued)

In September 1990, ATSDR awarded a grant to the NJDOH to begin an expanded study of low birthweight for the communities near the Lipari Landfill. This grant made available funds to computerize New Jersey Vital Records data for births occurring during the years 1965-69 and 1975-79. This has allowed the State Health Department to develop a database that can be used for future studies of low birth weight in the communities around the Lipari Landfill. The final report will be available sometime later in 1993.

Funding (FY 1990-1992): $180,000.

Research Program for Exposure Characterization (1992-1995)

In 1992, the University of Medicine and Dentistry of New Jersey and ATSDR entered into a three-year cooperative agreement to develop a research program on exposure characterization in response to the national need for detailed information on human exposure and dose for contaminants commonly found at Department of Energy hazardous waste facilities and National Priorities List sites. The program supports ATSDR's toxicological research program and augments the preparation of public health assessments. Specifically, the program is to (1) develop a scientific framework for implementing exposure characterization analyses, (2) demonstrate the utility of the approach in estimation of exposures using existing data from an exemplary DOE waste site, (3) identify major information gaps that require new measurements or further historical data, and (4) train students and ATSDR personnel in the methods necessary to complete future characterizations. Research has been initiated on the development of a flexible, modular, modeling system for estimating multipathway, multiroute exposure and internal dose from environmental information. Ongoing and future work will focus on the refinement of the physiologically-based pharmacokinetics model (PBPKM) system and the development of related procedures. An Environmental & Occupational Health Sciences Institute-ATSDR workshop on methodological issues is scheduled for September 1993.

Funding (FY 1992): $200,000.

Total Direct Funds in Support of New Jersey Activities: over $3.6 million.

List of Areas Closed to the Public or Restricted

ATSDR has worked with the National Governors' Association to develop and maintain a national listing of areas closed to the public or otherwise restricted in use by the states because of hazardous substance contamination. In the most recent listing a total of 201 sites are listed in New Jersey. (See Table C, page 15)

Toxicological Profiles

The Division of Toxicology develops toxicological profiles for substances found at NPL sites to describe health effects and environmental information. These profiles contain information on the pathways of human exposure and the behavior of hazardous substances in environmental media, such as air, soil and water. Thus far, 50 recipients are in New Jersey, including state and local health officials, academia, private industry, and nonprofit organizations, have requested placement on the toxicological profile mailing list. To be considered for inclusion on this mailing list you may call the Division of Toxicology's Tox Info Line at (404) 639-6000 for further information.

Table A

Status of Public Health Assessments in New Jersey

Site Name	City/County	Type	Date
A. O. Polymer	Sparta TWP/Sussex	HA	08/01/90
A. O. Polymer	Sparta TWP/Sussex	HD	07/30/90
American Cyanamid Co.	Bound Brook/Somerset	HA	08/03/90
Asbestos Disposal Site	Millington/Morris	HA	04/01/89
Asbestos Disposal Site	Millington/Morris	HV	12/20/90
Bayonne Barrel & Drum*	Bayonne/Essex	HA	02/01/87
Beachwood Borough/Berkeley	Berkeley TWP/Ocean	HA	04/01/89
Bog Creek Farm	Howell TWP/Monmouth	HA	04/01/89
Brick Township Landfill	Brick TWP/Ocean	HA	06/01/90
Bridgeport Rental & Oil	Logan TWP/Gloucester	HA	03/01/86
Brook Industrial Park	Bound Brook/Somerset	HA	09/27/90
Burnt Fly Bog	Marlboro TWP/Monmouth	HA	08/01/88
Buzby Brothers Landfill*	Voorhees TWP/Camden	HA	06/05/91
Caldwell Trucking Co.	Fairfield TWP/Essex	HA	10/01/88
Chemical Control Corp.	Elizabeth/Union	HA	04/01/87
Chemical Insecticide Corp.	Edison TWP/Middlesex	HP	06/08/92
Chemical Leaman Tank Lines	Logan TWP/Gloucester	HD	09/21/90
Chemical Leaman Tank Lines	Logan TWP/Gloucester	HA	04/01/89
Chemsol, Inc.	Piscataway/Middlesex	HP	04/01/89
Ciba-Geigy Corp.	Tons River/Ocean	HA	10/01/88
Cinnaminson Groundwater Contamination	Cinnaminson/Burlington	HA	07/01/90
Combe Fill North Landfill	Mount Olive/Morris	HA	05/01/88
Combe Fill South Landfill	Chester TWP/Morris	HA	05/01/88
Cooper Road Site*	Voorhees TWP/Camden	HA	09/01/88
Cosden Chemical Coatings Corp.	Beverly/Burlington	HP	07/01/88
CPS/Madison Industries	Old Bridge TWP/Middlesex	HA	12/21/91
CPS/Madison Industries	Old Bridge TWP/Middlesex	HP	01/01/89
Curcio Scrap Metal Yard	Saddle Brook/Bergen	HA	09/08/92
Curcio Scrap Metal Yard	Saddle Brook/Bergen	HP	07/01/88
D'Imperio Property	Hamilton TWP/Atlantic	HA	08/01/88
Dayco Corp/L E Carpenter	Wharton Boro/Morris	HA	06/01/90
De Rewal Chemical Co.	Kingwood TWP/Hunterdon	HP	04/01/89
Delilah Road	Egg Harbor TWP/Atlantic	HA	08/14/92
Denzer & Schafer X-Ray Co.	Berkeley TWP/Ocean	HA	08/01/90
Diamond Alkali Co.	Newark/Essex	HA	11/01/87
Dover Municipal Well 4	Dover TWP/Morris	HA	06/01/90
E.I. DuPont*	Pompton Lakes/Passaic	HA	11/01/92
Ellis Property	Evesham TWP/Burlington	HA	06/01/90
Evor Phillips Leasing	Old Bridge/Morris	HP	04/01/89
Ewan Property	Shamong TWP/Burlington	HA	07/01/90
Fair Lawn Well Fields	Fair Lawn/Bergen	HP	01/01/89
Florence Land Recontouring Inc.	Florence TWP/Burlington	HA	10/01/88
Fort Dix Landfill	Pemberton TWP/Burlington	HP	12/01/88
Fried Industries	E. Brunswick/Middlesex	HA	08/01/90
Garden State Cleaners	Buena/Atlantic	HA	09/28/90

Table A - Status of Public Health Assessments in New Jersey (continued)

Site Name	City/County	Type	Date
Gems Landfill	Gloucester TWP/Camden	HA	06/01/89
Glen Ridge Radium Site	Glen Ridge/Essex	HP	04/01/85
Global Landfill	Old Bridge/Middlesex	HP	12/10/92
Goose Farm	Plumsted TWP/Ocean	HA	04/01/89
Helen Kramer Landfill	Mantua TWP/Gloucester	HD	08/25/89
Helen Kramer Landfill	Mantua TWP/Gloucester	HA	04/01/87
Hercules Inc.	Gibbstown/Gloucester	HP	04/01/89
Higgins Disposal Service	Kingston/Somerset	HA	09/27/90
Higgins Farm	Franklin TWP/Somerset	HA	09/27/90
Hopkins Farm	Plumsted TWP/Ocean	HA	06/01/90
Horstman's Dump*	East Hanover/Morris	HP	07/01/88
Imperial Oil Co. Inc.	Morganville/Monmouth	HA	07/30/90
Industrial Latex	Wallington/Bergen	HA	09/29/90
Jackson TWP Landfill	Jackson TWP/Ocean	HA	09/16/92
Jackson TWP Landfill	Jackson TWP/Ocean	HA	10/01/89
JIS Landfill	S Brunswick/Middlesex	HA	07/30/90
JIS Landfill	S Brunswick/Middlesex	HA	06/01/91
Kauffman and Minteer	Springfield TWP/Burlington	HP	04/28/92
Kin-Buc Landfill	Edison/Middlesex	HA	06/01/87
King of Prussia	Winslow TWP/Camden	HA	06/01/90
Krysowaty Farm*	Hillsborough/Somerset	HA	09/24/86
Landfill & Development	Mount Holly/Burlington	HA	06/01/90
Lang Property	Pemberton/Burlington	HA	04/01/89
Lipari Landfill	Pitman/Gloucester	HA	10/01/85
Lipari Landfill	Pitman/Gloucester	HD	04/01/89
Lodi Municipal Wells	Lodi/Bergen	HA	06/01/90
Lone Pine Landfill	Freehold/Monmouth	HA	04/01/89
M & T Delisa Landfill	Ocean TWP/Monmouth	HA	02/18/92
M & T Delisa Landfill	Ocean TWP/Monmouth	HP	01/01/89
Mannheim Ave. Dump	Galloway TWP/Atlantic	HA	09/14/82
Mannheim Ave. Dump	Galloway TWP/Atlantic	HP	11/01/88
Matlack Inc.*	Swedesboro/Gloucester	HP	01/01/89
Maywood Chemical Co.	Maywood /Bergen	HA	07/01/90
Metaltec/Aerosystems	Franklin Berg/Sussex	HA	11/01/88
Monitor Devices/Intercircuits	Wall TWP/Monmouth	HA	06/01/90
Monroe Township Landfill	Monroe TWP/Mercer	HP	04/01/89
Montclair/West Orange Radium	Montclair/Essex	HP	04/01/85
Montgomery Township Housing Dept.	Montgomery /Somerset	HA	07/01/88
Myers Prop.	Franklin TWP/Hunterdon	HD	04/01/89
Myers Prop.	Franklin TWP/Hunterdon	HP	06/01/90
Nascolite Corp.	Millville/Cumberland	HA	06/01/87
Nascolite Corp.	Millville/Cumberland	HA	06/15/92
Naval Air Engineering Center	Lakehurst/Ocean	HP	01/01/89
Naval Weapons Station Earle	Colts Neck/Monmouth	HP	11/01/88
NL Industries Inc.	Pedricktown /Salem	HP	04/01/89
Pepe Field	Boonton/Morris	HA	08/01/87
Pijak Farm	New Egypt/Ocean	HA	10/01/88
PJP Landfill	Jersey City/Hudson	HP	10/01/88

Table A - Status of Public Health Assessments in New Jersey (continued)

Site Name	City/County	Type	Date
Pohatcong Valley Groundwater	Washington/Warren	HA	09/28/90
Pomona Oaks Residential Wells	Galloway TWP/Atlantic	HA	10/27/89
Pomona Oaks Well Contamination	Galloway TWP/Atlantic	HA	08/17/92
Price Landfill #1	Pleasantville/Atlantic	HA	06/01/90
Radiation Technology Inc.	Rockaway TWP/Morris	HA	07/01/90
Reich Farms	Dover TWP/Ocean	HA	04/01/89
Renora Inc.	Edison TWP/Middlesex	HA	04/01/89
Ringwood Mines/Landfill	Ringwood/Passaic	HA	04/01/89
Rock Hill Municipal Wellfiled	Rocky Hill Borg/Somerset	HA	08/15/89
Rockaway Boro Wellfield	Rockaway/Morris	HA	04/01/89
Rockaway TWP Wells	Rockaway TWP/Morris	HA	06/01/90
Roebling Steel Co.	Roebling/Burlington	HA	09/29/92
Sayreville Landfill	Sayreville/Middlesex	HA	08/14/92
Sayreville Landfill	Sayreville/Middlesex	HP	10/01/88
Scientific Chem. Processing Inc.	Carlstadt/Bergen	HP	01/01/89
Scientific Chem. Processing Inc.	Carlstadt/Bergen	HA	10/31/91
Sharkey Landfill	Parsippany/Morris	HA	12/01/88
Shield Alloy Corp.	Newfield/Gloucester	HP	11/01/88
South Brunswick Landfill	S. Brunswick/Middlesex	HA	04/01/89
South Jersey Clothing Co.	Minotola/Atlantic	HA	09/27/90
Spence Farm	Plumstead TWP/Ocean	HA	04/01/89
Swope Oil & Chem Co.	Pennsauken/Camden	HA	04/01/89
Syngon Resins	Kearny/Hudson	HA	10/01/88
Tabernacle Drum Dump	Tabernacle TWP/Burlington	HA	10/01/88
U.S. Radium-West Orange	Orange/Essex	HP	01/01/89
Universal Oil Prod Inc.	East Rutherford/Bergen	HP	04/01/89
Upper Deerfield Township Landfill	Upper Deerfield/Cumberland	HD	08/03/92
Upper Deerfield Township Landfill	Upper Deerfield/Cumberland	HA	06/01/90
Ventron/Velsicol	Wood-Ridge /Bergen	HP	04/01/89
Vineland Chemical Co. Inc.	Vineland/Cumberland	HA	04/25/89
Vineland State School	Vineland/Cumberland	HA	06/01/90
W. R. Grace/Wayne Interim Storage	Wayne/Passaic	HA	07/01/90
Waldick Aerospace Devices	Wall TWP/Monmouth	HD	09/25/91
Waldick Aerospace Devices	Wall TWP/Monmouth	HA	02/01/88
White Chemical Co.*	Bayonne/Hudson	HV	11/21/90
Williams Property	Swainton/Cape May	HA	09/01/88
Wilson Farm	Plumsted TWP/Ocean	HA	06/01/90
Witco Chemical Corp.	Oakland/Bergen	HP	02/07/92
Woodland Township Route 532	Woodland TWP/Burlington	HA	03/02/92
Woodland Township Route 72	Woodland TWP/Burlington	HA	03/02/92
Woodland Township Route 532	Woodland TWP/Burlington	HP	11/01/88
Woodland Township Route 72	Woodland TWP/Burlington	HP	01/01/89

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* Not or no longer an NPL site

Type Public Health Assessment: HA - Standard (Full); HD - Addendum; HP - Preliminary; HV - Advisory

Table B

Documented Health Consultations at New Jersey Sites

(the number of consultations for each site are in parentheses)

Site Name	City	County
Albert Steel Drum (2)	Newark	Essex
Asbestos Disposal	Millington	Morris
Bayonne Barrel and Drum	Newark	Essex
Bog Creek (2)	Howell TWP	Monmouth
Bridgeport Rental (2)	Logan TWP	Glouchester
Brook Industrial Park	Bound Brook	Somerset
Caldwell Trucking	Fairfield	Essex
Chemical Leaman Tank	Logan TWP	Gloucester
Ciba Geigy Corp.	Toms River	Ocean
Cinnaminson Groundwater	Cinnaminson	Burlington
Citizen	Edison	Middlesex
Citizen	Jersey City	Hudson
Citizen	Woodland TWP	Burlington
Citizen	Atlantic City	Atlantic
Colloid Chemical	Cedar Knolls	Morris
Combfill North Landfill (2)	Mount Olive TWP	Morris
Cooper Battery Products (7)	Bloomfield	Essex
Denzer & Schafer X-Ray	Berkeley TWP	Ocean
Dietzman Tract Asbestos	Millington	Morris
DuPont - Pompton Lakes	Pompton Lakes	Passaic
Edgeboro Landfill	East Brunswick	Middlesex
Elizabeth Coal Gas (4)	Elizabeth	Pompton
Fasco Finishing Company (2)	Phillipsburg	Warren
Franklin Burn Site (2)	Franklin TWP	Gloucester
GAF University Avenue (2)	Gloucester	Camden
Galdieri's Junk Yard	Morristown	Morris
Gems Landfill	Gloucester TWP	Camden
Goose Farm	Plumsted TWP	Ocean
Helen Kramer Landfill (2)	Mantua TWP	Gloucester
Higgins Farm	Franklin TWP	Somerset
Horseshoe Road	Sayreville	Middlesex
Ideal Cooperage (2)	Jersey City	Hudson
Imperial Oil Co.	Morganville	Monmouth
Industrial Complex	Newark	Essex
Industrial Latex (4)	Wallington	Bergen
Kauffman & Minfeen	Springfield TWP	Burlington
Linden Hazardous Waste	Linden	Union
Lipari Landfill (3)	Pitman	Gloucester
Maas-Waldstein Paint (2)	Newark	Essex
Mannheim Avenue Dump (2)	Galloway TWP	Atlantic
Mays Landing Private	Mays Landing	Atlantic
MKY - Byram	Byram TWP	Sussex
MKY Corporation	Andover	Sussex
Montclair/W. Orange	Montclair/W. Orange	Essex
Myers Property	Franklin TWP	Hunterdon

Table B - Documented Health Consultations at New Jersey Sites (continued)

Site Name	City	County
New Vernon Road Subs. (2)	Meyersville	Morris
Noble Oil Co.	Tabernacle	Burlington
Pittsburgh Metal	Jersey City	Hudson
Pomona Oaks Well Con.	Galloway TWP	Atlantic
Pulverizing Services (5)	Moorestown	Burlington
Roebling Steel Co. (2)	Roebling	Burlington
Santa Clara Arsenic	-	-
Sayreville Landfill (2)	Sayreville	Middlesex
Scientific Chemical Proc.	Carlstadt	Bergen
Shopping Center	-	-
Tabernacle Drum Dump	Burlington	-
Tidewater Baling (3)	Newark	Essex
Treated Sawdust	-	-
U.S. Yacht Paint Factory (2)	Montville	Morris
U.S. Dept. of Commerce	Highlands	Monmouth
U.S. Radium Corporation	W. Orange	Essex
Ventron/Velsicol (2)	Woodridge	Bergen
Virginia/Franklin	-	-
Walton's Farm (2)	Delran TWP	Burlington
Warren County Ground	Hackettstown	Warren
White Bridge Road (2)	Meyersville	Morris
White Chemical - Brom	Newark	-
White Chemical Corporation (3)	Bayonne	Hudson

Table C

List of Areas Closed to the Public or Restricted

Site Name	City	County
Albert Steel Drum	Newark	Essex
Alcyon Lake	Pitman	Gloucester
Arky Property	Malboro	Monmouth
Barnegat Pines North	Lacey	Ocean
Belmar Coal Gas Site	Belmar	Monmouth
Bethel Church Road	-	Ocean
Bio-Tech	Lake Kemah	Sussex
Bloomsbury Water Dept.	Bloomsbury	Hunterdon
Bog Creek Farm	Howell	Monmouth
Bomarc Missile Site	Plumstead Township	-
Borne Chemical Company	Elizabeth	Union
Breton Harbors	Dover	Ocean
Brick Township Landfill	Brick Township	Ocean
Bridgeport Rental and Oil Services	Logan Township	Gloucester
Brook Industrial Park	Boundbrook	Somerset
Buena Borough	Buena	Atlantic
Burnt Fly Bog	Marlboro Township	Monmouth
Butler Boulevard	Berkley	Ocean
Bryam Township	-	Sussex
CPS/Madison Industries	Old Bridge Township	Middlesex
Caldwell Trucking Company	Fairfield Township	Essex
Camden City Well Contamination	Camden	Camden
Carvel Avenue Area	Galloway	Atlantic
Chemical Control	Elizabeth	Union
Chemical Insecticide	Edison	Middlesex
Chemical Leaman Tank Lines, Inc.	Logan	Gloucester
Ciba-Geigy Corporation	Toms River	Ocean
Cleveland	Washington Township	Morris
Clinton Township	Clinton	Hunterdon
Combe Fill North Landfill	Mount Olive	Morris
Combe Fill South Landfill	Washington, Chester	Morris
Constitution Drive Area	Lacey	Ocean
Cooper River	Camden	-
Cooper River Lake	-	Camden
Cosden Chemical/Coating	Beverly	Burlington
De Rewal Chemical Co.	Kingwood	Hunterdon
Delaware River	Burlignton	Burlington
Delilah Road Landfill	Egg Harbor	Atlantic
Denville Water Dept.	Denville	Morris
Diamond Alkali Co.	Newark	Essex
Dover Landfill	Dover	Ocean
Dover Municipal Well Number 4	Dover	Morris
Duane Marine	Perth Amboy	Middlesex
East Hanover	East Hanover	Morris
Electronic Parts Specialty Co.	Lumberton	Burlington
Ewan Property	Shamong	Burlington

Table C - List of Areas Closed to the Public or Restricted (continued)

Site Name	City	County
Fair Lawn Wells	Fair Lawn	Bergen
Fairclough and Sons	Montville	Morris
Fairview Manor	-	Atlantic
Fisher Scientific Company	Bridgewater Township	Somerset
Flemington Water Dept.	Flemington	Hunterdon
Florence Land Recontouring Landfill	Florence/Mansfield	Burlington
Franklin Borough Wells	Franklin	Sussex
Freewood Acres	-	Monmouth
Fried Industries	East Brunswick	Middlesex
Galloping Hill Golf	-	Union
Gamma Industries	Point Norris	-
Garden State Cleaners	Buena	Atlantic
Garfield Water Department	Elmwood Park	Bergen
Gems Landfill	Gloucester Township	Camden
Givaudan Corporation	Clifton	Passaic
Glassboro Coal Gas	Glassboro	Gloucester
Gloucester Gas Works	Gloucester	Camden
Gulf and Western	Branchburg	Somerset
Haddon Avenue	-	Atlantic
Hafer Machine and Tool	North Haledon	Passaic
Hamilton Township	Hamilton	Atlantic
Harding Street	-	Mercer
Hawkins Road	-	Ocean
Hawthorne Water Dept.	Hawthorne	Passaic
Helen Kramer Landfill	Mantua Township	Gloucester
Higgins Disposal Service, Inc.	Kingston	Somerset
Higgins Farm/Route 518	Franklin	Somerset
High Point Landfill	Franklin TWP	Warren
Hillsboro	Hillsboro	Somerset
Ho-Ho-Kus Water Dept.	Ho-Ho-Kus	Bergen
Hope Auto Care	-	Warren
Hopewell Township	Hopewell	Mercer
Horseshoe Rd/Atlantic Resources	Sayreville	Middlesex
Hudson Co. Chromate Contamination	Jersey City	Hudson
Hudson River	Alpine	Bergen
Imperial Oil Co., Inc.	Morganville	Monmouth
Inmont Corporation	Hawthorne	Passaic
JIS Landfill	South Brunswick	Middlesex
Jackson Township Landfill	Jackson Township	Ocean
Janet Street	-	Atlantic
Jones Industrial Serv. Landfill	South Brunswick	Middlesex
Kenvil	Roxbury	Morris
Ketcham and McDougall	Roseland	Essex
Kin-Buc Landfill	Edison	Middlesex
King of Prussia Landfill	Winslow Township	Camden
Koppers Coke	Kearney	Hudson
Krysowaty Farm	Hillsboro TWP	Somerset
Lacey Exxon	Lacey	Ocean

Table C - List of Areas Closed to the Public or Restricted (continued)

Site Name	City	County
Lake Barnegat Drive North	Lacey	Ocean
Lakehurst Exxon	lakehurst	Ocean
Landfill & Development Co.	Mount Holly TWP	Burlington
Lang Property	Pemberton	Burlington
Lanoka Harbor	-	Ocean
Laurel Avenue Wells	Franklin	Somerset
Lipari Landfill	Mantua Township	Gloucester
Lisa Drive	Galloway	Atlantic
Lodi Wells	Lodi	Bergen
Lone Pine Landfill	Freehold Township	Monmouth
Mack-Wayne Plastics Co.	Wayne	Passaic
Mannheim Avenue Dump	Galloway	Atlantic
Manville Wells	-	Somerset
Marotta Scientific Controls, Inc.	Montville	Morris
Mayville	Middle Township	Cape May
McGraw-Edison Co./Worthington	East Orange	Essex
Metaltec/Aerosystems	Franklin	Sussex
Middlesex DOE Facility	Middlesex TWP	Middlesex
Millington Asbestos Dump	Passaic, Harding	Morris
Mobay Chemical Corp.	Haledon	Passaic
Monroe Township Landfill	Monroe Township	Middlesex
Montgomery TWP Housing Develop.	Montgomery TWP	Somerset
Myers Property	Franklin	Hunterdon
NL Industries Incorporated	Oldmans	Salem
Nascolite Corporation	Millville	Cumberland
National Diagnostics	Hillsboro	Somerset
Netcong Well Number 5	-	Morris
New Brunswick Laboratory	New Brunswick	Middlesex
New Jersey Water Co.	-	Warren
New York Avenue	-	Atlantic
Newark Bay Complex	-	-
Newton Lake	Camden	Camden
North Gilford Park	Dover	Ocean
North Haledon	North Haledon	Passaic
North Vineland	North Vineland	Cumberland
Old Champlain Well	Hillsboro	Somerset
Old Stirling Road	-	Somerset
Orange City Water Dept.	Orange	Essex
Ottilio Landfill	Newark	Essex
PJP Landfill	Jersey City	Hudson
Palerno	Upper Township	Cape May
Park Ridge Water Dept.	Park Ridge	Bergen
Passaic River	-	-
Pennington Road	Pennington	Mercer
Pennington Water Dept.	Pennington	Mercer
Pennsauken Creek	Pennsauken	Camden
Pepe Field	Boonton TWP	Morris

Table C - **List of Areas Closed to the Public or Restricted** (continued)

Site Name	**City**	**County**
Pinelands Park	-	Atlantic
Pinehurst Area	-	Atlantic
Pitt Street	South Plainfield	Middlesex
Pleasant Woods	Egg Harbor	Atlantic
Pohatcong Valley Groundwater	Washington/Franklin	Warren
Pomona Oaks	Galloway TWP	Atlantic
Price's Landfill	Pleasantville	Atlantic
Quanta Resources	Edgewater	Bergen
RCA Solid State Division	Somerville	Somerset
RTE Power/Mate Co.	Hackensack	Bergen
Radiation Technology	Rockaway TWP	Morris
Rahway Water Dept.	Rahway	Union
Ramsey Municipal Wells	Ramsey	Bergen
Raritan Arsenal	Edison	Middlesex
Raritan and Sandy Hook Bays	-	-
Readington Township	Readington	Hunterdon
Reich Farm	Dover Township	Ocean
Renora Inc.	Edison	Middlesex
Research Organic-Inorganic	Belleville	Essex
Ridgewood Water Dept.	Ridgewood	Bergen
Ringwood Mines	Ringwood Borough	Passaic
Rockaway Borough Wells	Rockaway	Morris
Rockaway Township Wells	Rockaway	Morris
Rocky Hill Municipal Wells	Rocky Hill	Somerset
Roxbury Water Company Wells	Roxbury	Morris
Sayreville Landfill	Sayreville	-
Scientific Chemical Processing	Carlstadt	Bergen
Sharkeys Landfill	Parsippany/Troy Hill	Morris
Sharon Road/Miller Chemical	Washington	Mercer
Shelter Cove	Dover	Ocean
Shieldalloy Corp.	Newfield	Gloucester
Silverton Road	Dover	Ocean
Smith Residence	Monroe	Middlesex
South Brunswick Landfill	South Brunswick	Middlesex
South Jersey Clothing Co.	Buena	Atlantic
South Plainfield	South Plainfield	Middlesex
Spartan Oil Company	Rockaway	Morris
Spring Mill Drive	-	Atlantic
Stafford Township Private Wells	Stafford	Ocean
Stainsby Road	-	Passaic
Stepan Chemical	Maywood	-
Stewart Lake	Camden	Camden
Stoningham Drive	-	Somerset
Strawbridge Lake	Moorestown	Burlington
Stuart Lake	Woodbury	Gloucester
Swope Oil and Chemical Co.	Pennsauken	Camden
U.S. Radium Site	Orange	Essex

Table C - **List of Areas Closed to the Public or Restricted** (continued)

Site Name	**City**	**County**
Unisys	-	Somerset
Upper Deerfield Sanitary Landfill	Upper Deerfield	Cumberland
Vernon Mobil Exxon	-	Sussex
Vineland Development Center	Vineland	Cumberland
Waldick Aerospace Devices, Inc.	Wall	Monmouth
Waldwick Water Dept.	Waldwick	Bergen
Ward Property Partnership	West Orange	Essex
Washington Valley Auto	Warren	Union
West Milford	West Milford	Passaic
Wharton Wells 1 & 2	Wharton	Morris
Williams Property	Middle Township	Cape May
Woodland TWP - Rt 532 Dump	Woodland	Burlington
Woods Road	-	Somerset

Testimony of Dr. Howard M. Kipen before the Senate Subcommittee on Superfund, Recycling, and Solid Waste Management

April 12, 1993

Trenton, New Jersey

Introduction

My name is Howard Matthew Kipen. I am an Associate Professor at UMDNJ-Robert Wood Johnson Medical School, an internist and occupational physician, and the Medical Director of our Environmental and Occupational Health Clinical Center, housed in the Environmental and Occupational Health Sciences Institute, jointly run by the medical school and Rutgers University. In addition to patient care, my duties include epidemiologic and clinical research (I hold two NIH grants and one EPA contract in this area) teaching, and public service on various federal, state, and local committees and panels. I am president-elect of the Occupational Medicine Association of New Jersey and I am Secretary of the Board of Directors of the Association of Occupational and Environmental Clinics (AOEC).

Before I give you the particulars of my background and qualifications, I would like to thank you for inviting me here today. I would also like to take this opportunity to thank you for your leadership in this vital area of how America deals with chemical threats to human health. I specifically want to give my unequivocal support for two aspects of the Superfund Law with which I have the greatest familiarity. The first area is federally sponsored research into the human health effects of hazardous chemicals, especially at the low levels relevant to real world decision making about cleanups. The second area, perhaps less appreciated, but of equal or greater importance to the health and happiness of the American people, is the initiatives of ATSDR and NIEHS to improve the woefully inadquate knowledge base of American physicians with respect to chemical toxicity, exposure, and risk assessment and counselling issues. These agencies are engaged in critical reseach and education initiatives for both medical school curricula (e.g., Environmental and Occupational Medicine Academic Awards from NIEHS) and for continuing education for private physicians (e.g., ATSDR Case Studies in Environmental Medicine and sponsored education programs). Because of the central role of physicians in educating and guiding their patients, a thoroughly informed and responsive medical community is vital to communication and interpretation of toxic chemical issues for the emotional as well as physical well being of the public.

Personal background

I was born and raised and attended public school in Los Angeles, followed by four years at UC Berkeley. I then attended medical school at UC San Francisco, graduating with honors in 1979.

I moved to New York City and did a residency in internal medicine at Columbia Presbyterian Medical Center. As one of my teaching attendings in the hospital I was privileged to have Dr. I. Bernard Weinstein, now Director of the Columbia-Presbyterian Comprehensive Cancer Center and then Director of the Division of Environmental Sciences at the Columbia University School of Public Health in addition to being Professor of Medicine. He introduced me to occupational medicine, and arranged for me to spend the next year as a student in the Columbia MPH program where I studied with him and with Jean Mager Stellman. Because I sought clinical and additional epidemiological training in my new found field I was fortunate to be accepted to spend the next year as a resident at the Environmental Sciences Laboratory, Mount Sinai School of Medicine, on a Public Health Service Fellowship. The laboratory and program were directed by the late Irving J. Selikoff, who along with Ruth Lilis, provided wonderful clinical training which I completed in 1984. I am board certified in internal medicine and in occupational medicine.

I then accepted my present position as Assistant (now Associate) Professor of Environmental & Community Medicine at UMDNJ-Robert Wood Johnson Medical School. I am Medical Director of our Environmental & Occupational Health Clinical Center within the Environmental & Occupational Health Sciences Institute. I see referral patients there at least one half day per week including a monthly clinic for pregnant women concerned about toxic exposures. My duties include teaching occupational medicine residents, internal medicine residents, medical students, public health students, and toxicology graduate students. I hold a five year Academic Award in Environmental & Occupational Medicine from the NIEHS, and together with colleagues and students from the Rutgers University Graduate School of Education we have embarked on some creative solutions to the persistent problem of how to effectively teach medical students and housestaff in this area.

My research focuses on clinical epidemiology including studies of Multiple Chemical Sensitivities (MCS) funded by the NIEHS and occupational and environmental factors in asthma and other respiratory disease, often conducted jointly with the New Jersey Department of Health. I have also published on hematologic disease due to benzene and other toxic chemicals, environmental cancer causation, and recognition of occupational and environmental diseases by clinicians.

Testimony of Dr. Howard M. Kipen

Selected Examples of Toxicity Due to Hazardous Waste

Our Clinical Center has seen thousands of patients with illnesses or issues relating to toxic chemcials since it opened in 1985. I have selected a few examples of cases related to exposure to hazardous waste at NPL sites, and then I will discuss some more general issues related to toxic chemicals.

An Abandoned Chemical Plant

As an outgrowth of my clinical practice I have particular familiarity with one ~~particular~~ Superfund Site in New Jersey known as White Chemical in Newark. This site contained the remnants of a specialty chemical manufacturing plant, mostly unlabelled drums of acids. I have cared for four individuals, two EPA site investigation employees, one ATSDR investigation employee, and a Newark City fire inspector, all of whom developed environmental/occupational asthma in 1990-1991 as a consequence of inspecting or supervising work on the site. Two women are in their twenties and thirties and the two men are in their early fifties. I believe the fireman's exposure occurred before the site was named to the NPL, and before the highly toxic nature of its contents was fully appreciated. All of these individuals have suffered long term, perhaps permanent, respiratory impairment as a consequence of exposures on the site. They all meet diagnostic criteria for RADS (reactive airways dysfunction syndrome), a form of irritant induced asthma, except that none presented to a physician until weeks to months after exposure began. None had a prior history of allergies, respiratory disease or smoking which would predispose them to develop asthma. All now require daily medication to control their disease and the three hazardous waste workers have had to change their employment.

There is no doubt in my mind that the respiratory illnesses in these remediation and investigation workers arose from the site in question. Exposures to the surrounding community would of course have been lower, but I am aware of complaints from adjacent workplaces and possibly residential areas. I do not know of any investigation, and of course these larger and less geographically and personally focused investigations are orders of magnitude more difficult to conduct. None of the treating physicians of these individuals were comfortable addressing the concerns of these individuals about hazardous waste exposure.

Asbestos Waste in a Suburban Community

I have also examined and counselled a family in 1991 who live and work on an NPL site in or adjacent to Meyersville in Morris County. Their soil is contaminated with asbestos manufacturing waste, and exposures occurred over a number of years to the parents, children, tenant, and employees of the father's landscaping business. Fortunately, no disease attributable to asbestos was documented on my examinations, however complex issues of risk assessment, risk communication, and economic burden were raised. I believe state officials were aware of the site long before federal officials became involved and instigated a cleanup process. The family has suffered greatly, both emotionally and financially in the ensuing issues of cleanup, liability, and the like. Community physicians were unable to address their concerns about health risks to themselves or to their children. It did not help that the various federal officials who recommended and arranged for medical examinations had never considered how the costs would be borne.

Neurologic Illness in Construction Workers on a Former Municipal Coal Gas Facility

I have also examined four individuals who while working as construction workers were exposed to hazardous waste and now have debilitating neurological illness. A construction worker (Operating Engineers Union) from nearby in Pennsylvania was referred to our Clinic in 1991 by his rehabilitation specialist because of an unusual neurologic syndrome which arose in 1988 while he was working to prepare the land for a new stadium in Tampa, Florida. We examined him and made the determination that his cramp fasciculation syndrome arose from his exposure to toxic waste while operating his heavy equipment during initial preparation for building the stadium parking lot. He was a construction worker and not a hazardous waste worker. The tract of municipal land in question is the site of a former coal gassification facility and there were large amounts of residue which were uncovered and broken into during initial construction. Unfortunately, these workers had no protective equipment beyond hard hats. I understand from news footage that work was eventually halted when it was apparent that a local stream was becoming contaminated. A large amount of toxic material was excavated, and removed to a secure landfill. Three of his colleagues, who reside in Florida, have come up for examination and also show similar unusual signs of illness.

Comments

I have provided the above three examples of respiratory and neurologic disease due to hazardous waste exposure. We also see many patients, usually pregnant women, concerned about reproductive hazards, and we counsel these people as best we can. Fortunately, I have never been made aware of a clear adverse outcome linked to a waste site in any particular individual. However, I believe you will hear testimony today ATSDR which summarizes the work of New Jersey

Department of Health Investigators who have done epidemiologic studies documenting such increased risks in populations. Most practicing obstetricians and even genetic counsellors have little or no training or experience in providing counselling and realistic solutions to the concerns of pregnant women concerned about chemical exposure, whether at the workplace or in the community. Additionally, we have consulted with at least one municipality which had an excess rate of childhood leukemia, and is in an area where research has suggested excess leukemia rates due to passed chemcial contamination of drinking water supplies. We provided information and guidance, and unforunately had to correct the misinformation given by other physicians, who while expert in oncology, were not expert in issues of cancer causation and risk communication related to toxic chemicals.

This leads me to a related but frequently overlooked area of difficulty in discussing the health effects of toxic waste, which involves issues of needed research and education for health professionals. There are reasonable standards for establishing whether a **population** (such as the community above) exposed to hazardous chemicals has suffered an excess risk of cancer or other disease, because we have good standards for making the proper diagnosis of cancer or a birth defect or asthma or a neuropathy and because epidemiologic methods are well established. We can also measure exposures or reconstruct them. Then we can look for a statistically significant association between the exposures and the rate of disease in the **population**. This is called epidemiology.

However, no such standard, established, reliable or tried and true method exists for associating exposure with disease in the **individual**, rather than the group. There are no statistics to tell us for the individual if the relationship is causal or merely chance or due to a mixture of factors. The only standard is clinical judgement by physicians. But the problem is that most physicians, who have excellent training and skills for making diagnoses, are inadequately equipped to make causal judgements about chemicals and their relationship to disease. The problem of latency for some chemically induced diseases but not others, and complex issues of exposure assessment or pathways of exposure are just not taught in medical school, yet must be understood to deal with communities and individuals with hazardous waste in their neighborhoods.

Chemically induced disease and toxicology receives very short shrift in American medical education. This is a gross deficiency of our system of medical education when proper response to American's concerns about toxic waste is the issue. Americans trust their physicians, but the physicians are ill-prepared to respond, either with counselling or with diagnoses and appropriate followup. (The analogous problem also plagues occupational illness and the Workers Compensation system).

This is the gap which I have seen ATSDR fill most ably. Their educational materials for physicians are not only good, but they are well received by non-specialists such as family physicians and internists. They actually get read, understood, and remembered. Their symposia and seminars, which I have had the privilege to participate in, are again effectively geared to the practical needs of physicians caring for patients.

This is also the area of concentration for the Academic Awards from NIEHS. This series of awards which has been given so far to only 11 medical schools seeks to improve training in these areas for medical students while they are still in school, rather than to provide continuing education to practicing physicians. It is the natural complement to the ATSDR professional education mission.

Of course the research mission of ATSDR, NIEHS, EPA and other agencies, is the only hope for providing informed answers to vexing questions about low dose toxicity, whether some risks may decline after exposure, and how syndromes such as Multiple Chemical Sensitivities and Sick Building Syndrome arise and interact with chemcial exposures. These are all complex questions and often require creative and multidisciplinary approaches. Research and education sponsored by the Superfund has allowed the medical community to begin to take steps to respond to the tremendous need for answers to these problems.

I appreciate the opportunity to come before you and speak on behalf of the important work being done to improve the way we understand and deal with issues relating to toxic chemicals.

Thank you very much.

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TESTIMONY BEFORE THE SENATE SUBCOMMITTEE ON SUPERFUND, RECYCLING AND SOLID WASTE MANAGEMENT

TRENTON, NEW JERSEY

APRIL 12, 1993

PRESENTED BY DREW KODJAK, ENVIRONMENTAL ATTORNEY

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NEW JERSEY PUBLIC INTEREST RESEARCH GROUP

Thank you, Mr. Chairman, for this opportunity to speak with you about the ecological impacts of Superfund sites in New Jersey. I am Drew Kodjak, Environmental Attorney for New Jersey Public Interest Research Group (NJPIRG). NJPIRG is a nonprofit, nonpartisan research, education and advocacy group dedicated to environmental preservation, consumer protection and government reform. NJPIRG has approximately 70,000 members throughout New Jersey

The subject of my testimony is the ecological impacts of Superfund sites in New Jersey. Ecology is defined as "the relationship between organisms and their environment."[1] An organism is defined as "a living individual; a plant or animal."[2] While it should be noted that human beings are animals, for the purposes of this testimony, I will focus primarily on organisms other than human beings. However, the point must be made that the degradation of the environment effects all organisms, including human beings. Separating human beings from other organisms is an artificial, and potentially dangerous, distinction because it leads to the erroneous conclusion that we are somehow not dependent upon the same environment as other animals and plants.

As anecdotal proof of the interrelationship between human beings and other oganisms, take, for example, the historic practice of keeping a canary in a mine as a crude and cruel early-warning system. If the canary died, the miners realized they were in danger and evacuated the tunnel. On a larger scale, the same thing is happening in New Jersey. Our habitat is being contaminated by toxic chemicals, in part from Superfund sites. Some of our native organisms, our resident "canaries," are dying off. And we are losing valuable areas of habitat. While loss of plant and animal life is a tragedy for many reasons, this early warning system should not be ignored.

DEGRADATION OF HABITAT BY SUPERFUND SITES

Statewide Analysis

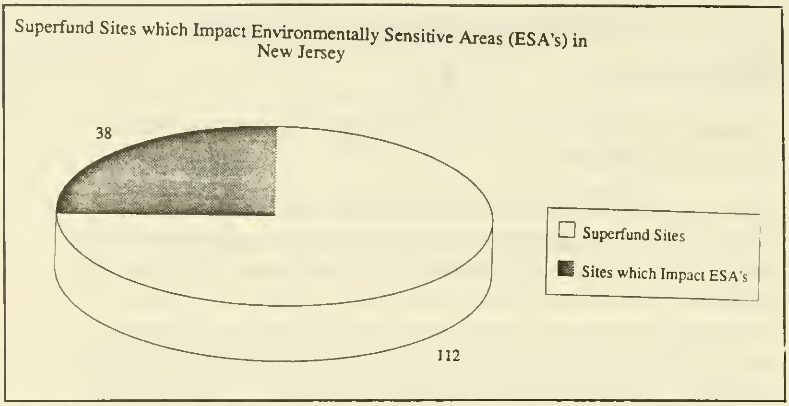
An analysis of Superfund sites in New Jersey and their impact on the environment presents an alarming picture.

Of the 112 Superfund sites in New Jersey, 92 percent have contaminated the ground water (103 sites). The chemical contaminants which appear in 10 percent or more of these sites are volatile organic compounds (VOCs), heavy metals (inorganics), and pesticides. VOCs are widely used as industrial solvents and include hazardous substances such as benzene, toluene, and vinyl chloride.[3] Benzene is a carcinogen, as well as a reporductive toxin. Examples of heavy metals are lead, chromium, and cadmium.[4] Like Benzene, cadmium is a carcinogen as well as a reproductive toxin.[5]

Soils are contaminated at 82 percent of the sites, or 92 sites. VOCs, heavy metals, polychlorinated biphenyls (PCBs), creosotes (organics) and pesticides each contaminate at least ten percent of these sites. PCBs are a group of toxic chemicals used in a variety of commercial purposes including electrical applications and hydraulic fluids. Chronic exposure of PCBs is believed to cause liver damage. PCBs are extremely persistent in the environment and are known to bioaccumulate in fatty tissues. The New Jersey Department of Environmental Protection and Energy's Division of Science and Research has published several studies on PCB contamination in New Jersey's estuarine and coastal marine waters. PCB use and sale was banned in 1979 with the passage of the Toxic Substances Control Act. Creosotes may cause skin ulcerations and cancer through prolonged exposure.

Surface waters are contaminated at 52 percent of the sites, or 58 sites. The principal contaminants are the same as those found in soils.

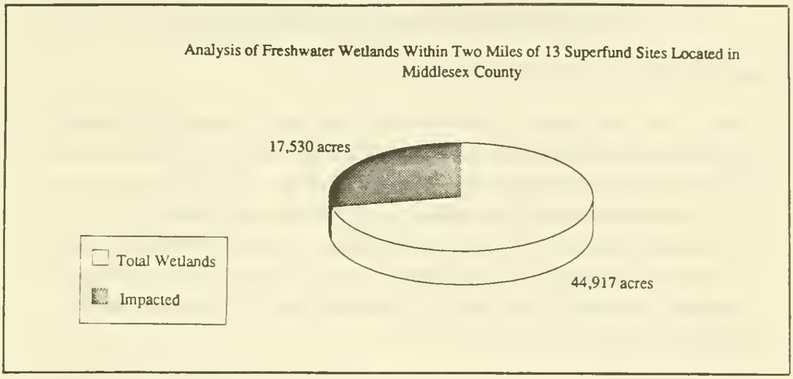
Environmentally sensitive areas (ESAs), such as the Pinelands, are contaminated at 34 percent of the sites, or 38 sites. Insufficient work has been done on this category of impacts to calculate the principal contaminants at these sites. In fact, more than 20 percent of the environmental damage from hazardous substances generated by Superfund sites in New Jersey is not accounted for by the EPA.[6]



Middlesex County [5]

An investigation of the proximity of Superfund sites to freshwater wetlands in Middlesex County through the State Department of Environmental Protection's Geographic Information System again produced alarming results.

Middlesex County, roughly 200,000 acres in total surface area, plays unwilling host to 13 Superfund sites.[6] Of the County's approximately 45,000 acres of freshwater wetlands, 17,530 acres, or 39 percent, are within two miles of a Superfund site.[7] Wetlands are areas regularly saturated by surface or ground water and under normal circumstances, are capable of supporting vegetation typically adapted for life in saturated soil conditions. Wetlands are critical to sustaining many species of fish and wildlife.



Breakdown by General Wetland Type Within 2 miles of Superfund SitE in Middlesex County

TYPE	ACRES
Deciduous Wooded	10,516
Coniferous Wooded	264
Deciduous Scrub/Shrub	1,530
Coniferous Scrub/Shrub	6
Herbaceous	1,286
Riverine/Open Water	1,108
Atlantic White Cedar	4
Other	2,816

IS NEW JERSEY'S ENVIRONMENT WORTH PROTECTING?

Plant and Animal Species in New Jersey

Believe it or not, New Jersey, the hazardous waste site capital of the nation, is home to some of the rarest plants in the world.[8] The world's most viable population of the sensitive joint vetch is found along the banks of the pristine water of the Manumuskin River in Cumberland County.[9] Most of the world's remaining populations of the Federally threatened swamp pink occur in the freshwater wetlands forests of New Jersey's Coastal Plain.[10] Three of New Jersey's endangered plant species do not occur naturally anywhere else in the world: bog asphodel, Knieshern's beaked rush, and Hammond's yellow spring beauty.[11]

While plants are an important part of New Jersey's unique environment, several species are also useful for their medicinal properties. Pawpaw, endangered in New Jersey, has been found to contain a family of biologically active compounds - acetongenins - that have very promising anti-cancer characteristics. Compounds derived from the mayapple, a plant common to deciduous forests in New Jersey, also are being used to treat specific cancers.[12]

Amphibians are highly sensitive to a degradation of their environment. The Blue-spotted Salamander is endangered in New Jersey. Its range is restricted to the Passaic River watershed, with population centers in the Great Swamp National Wildlife Refuge, Troy Meadows, and Lincoln Park. This species is closely tied to clean water. The occurrence of this rare amphibian in an region indicates a clean, healthy watershed. Pollution is a principal threat to the fragile ecosystems upon which this salamander depends.

A significant portion of our native plants and animals are either endangered or threatened with extinction in the State.[13] Oftentimes, these threatened species are also endangered nationally and globally. About 14 percent of New Jersey's native vertebrate species[14] and roughly 11 percent of New Jersey's native plant species[15] are officially listed as endangered.[16] And the lists keep growing. In 1975, the endangered wildlife species list contained 15 species. Today, that list contains 62 species.

Some species of plants and animals have already been either temporarily or permanently lost to New Jersey. The Heath Hen, Passenger Pigeon, Peregrine Falcon, and some species of beaver and deer were lost from New Jersey at one time due to unregulated hunting and loss of habitat. While some have been reintroduced successfully, others, like the Passenger Pigeon, are extinct world-wide.[19] To date, 34 plant species have been eliminated from New Jersey's native flora.[20]

Middlesex County

Middlesex County has a rich diversity of habitats. Several species are perhaps already lost as a result of polluted wetlands and waterways.[21] Despite the destruction of much of the habitat in Middlesex County, many rare members of flora still survive. In the Pine Barrens remnants near Browntown, Helmetta and Spotswood, in a white cedar swamp near Milltown, and in the tidal marshes and estuaries of the Raritan and South Rivers, rare species still persist.[22] The contamination of these remaining habitats through seepage from Superfund sites into the area is a real threat to the continued existence of these rare species within the County.

The Pinelands

When people think of natural wonders, they usually think of the Grand Canyon in Arizona or the Giant Redwood Trees in Northern California. But New Jersey has its own natural wonder: the Pinelands. Covering 1.1 million acres, or 22 percent of the State, the Pinelands is the largest contiguous piece of open space between Washington, D.C. and Boston. In the rock formations underneath the Pinelands lies the Kirkwood/Cohansey Aquifer which contains 17 trillion gallons of pristine, clean drinking water -- it is the largest aquifer east of the Mississippi River. It has been recognized by the United Nations as a resource of outstanding and unique value by being declared an International Biosphere Reserve -- one of only 247 worldwide.[23]

Unfortunately, nine Superfund sites are presently impacting the Pinelands.[24] Although contamination is only part of the cause, the Pinelands is home to 54 plant and 39 animal species threatened with extinction -- some of them found no where else in the world. At more than half of the Superfund sites in the Pinelands, final cleanup actions have been started and cleanup is underway. The environmental degradation and decrease in species would no doubt be far greater if these hazardous substances were left untreated.

Status of Cleanup of Superfund Sites within the New Jersey Pinelands

SITE NAME	SITE STATUS
Beachwood/ Berkeley Wells	Remedy Selected
Burnt Fly Bog	Cleanup Ongoing
D'Imperio Property	Cleanup Ongoing
Ewan Property	Remedy Selected
King Of Prussia	Remedy Selected
Lang Property	Cleanup Ongoing
Naval Air Engineering Center	Remedy Design
Woodland Route 72 Dump	Cleanup Ongoing
Woodland Route 532 Dump.	Cleanup Ongoing

Importance of the Superfund Program in Protecting Habitat and Species from Extinction

The Superfund program is essential to the reduction and elimination of the threats associated with hazardous waste sites in New Jersey. Despite rampant criticism by industry, often through paid advertisements, the Superfund program has made considerable progress in actual cleanups. In 1991, construction had started at more than four times as many sites as in 1986.[23] Of the sites currently on the National Priorities List, more than 500, or nearly half, have had actual cleanup activity.[24]

As mentioned previously, in the New Jersey Pinelands, five of the nine Superfund sites are at the ongoing cleanup phase, two are at the remedy design phase, and two are at the remedy selected phase.[25] There are seven phases in total: initial response, site studies, remedy selected, remedy design, cleanup ongoing, construction complete, deleted.

One accomplishment constantly taken for granted in the Superfund program is the emergency response actions taken by EPA to eliminate imminent threats to people or the

The Superfund program also provides a significant incentive for industries that handle hazardous substances to reduce the use in order to avoid costly disposal and the possibility of cleanup costs. In 1991, according to data collected under Title III of Superfund, national total emissions declined by 600 million pounds or roughly 11 percent.[28] In New Jersey, the reductions were even greater. Total reported emissions declined from 34.9 million pounds in 1989 to 26 million pounds in 1990, or roughly a 25 percent decrease.[29]

CONCLUSION

I appreciate the opportunity to testify in front of this committee. NJPIRG strongly supports the Superfund program and the work that has been done to cleanup New Jersey's hazardous waste sites. I would be happy to answer any questions you may have.

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[1] The American Heritage Dictionary, 2nd College Ed. (1985).

[2] Id.

[3] National Priorities List: New Jersey, United States Environmental Protection Agency (1991), p. 18.

[4] Chemical Consequences: An Invetigation of Toxic Chemical Use and its Impact on New Jersey, New Jersey Public Interest Research Group (1990).

[5] Id.

[6] Superfund, CERCLIS Characterization Project: Region 2 Results (1991), chart 27, p. 51.

[7] Data supplied by the New Jersey Department of Environmental Protection and Energy, Division of Science and Research. This analysis was done on the Geographic Information System.

[8] Burnt Fly Bog, Chemical Insecticide Corporation, Chemsol, Inc., CPC Chemical, Evor Phillips Leasing, Fried Industries, Global Sanitary Landfill, JIS Landfill, Kin-Buc Landfill, Monroe Township Landfill, Renora, Inc., Sayreville Landfill, South Brunswick Landfill.

[9] Id.

[10] New Jersey is a paradox. While we have the highest concentration of people in the nation, fifty percent of the land area, or some 2,500,000 areas is covered with woodlands. We have more than 1,200 freshwater lakes, ponds and reservoirs; nearly 6,400 miles of rivers and streams, and 400,000 areas of estuarine waters. The Common Wealth of New JerseY, Department of Environmental Protection, at 9 (1989)

[11] The Latin name for the sensitive joint vetch is *Aeschynomene virginica*

[12] The Latin name for the swamp pink is *Helonias bullata.*

[13] The Latin name for the bog asphodel is *Narthecium americanum.* The Latin name for the Knieshern's beaked rush is the *Rhynchospora knieskernii* The Latin name for the Hammond's yellow sping beauty is the *Claytonia virginica var. hammondiae.*

[14] New Jersey Audubon, Vol. 11, No.3, Fall, 1985

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[15] Endangered Species are those whose prospects for survival in new Jersey are in immediate danger because of a loss of change in habitat, over-exploitation, competition, disease, disturbance or contamination. Assistance is needed to prevent future extinction in New Jersey.

Threatened Species area those who may become endangered if conditions surrounding them begin to or continue to deteriorate.

[16] New Jersey's Endangered and Nongame Wildlife List. The list contains 62 species out of roughly 450 total native nongame species.

[17] New Jersey's Endangered Plant Species List. The list contains 308 species and is authorized by the Endangered Plant Species Act, which was adopted in 1989.

[18] Special Animals of New Jersey; Special Plants of New Jersey, Office of Natural Lands Management, Division of Parks and Forestry, Department of Environmental Protection and Energy, January, 1992.

[19] The New Jersey Endangered and Nongame Wildlife Program Brochure.

[20] New Jersey harbors about 735 species of fish and wildlife. About 2700 plants are native to the State.

[21] Louisiana sedge (Carex louisianica), Devil's bit (Charmaerlirium luteum), Purple fringeless orchid (Platanthera peromoena), Swamp cottonwood (Populus heterophylla), Rhodore (Rhododendron canaense). Check-List of the Native Vascular Flora of Middlesex County, New Jersey, 50 BOTONIA, at 43-50 (1984).

[22] Examples are Green's rush, Swamp pink, and the Bur-marigold.

[23] Factsheet prepared by the Pinelands Alliance and the New Jersey Chapter of the Sierra Club.

[24] Beachwood/ Berkeley Wells, Burnt Fly Bog, D'Imperio Property, Ewan Property, King Of Prussia, Lang Property, Naval Air Engineering Center, Woodland Route 72 Dump, Woodland Route 532 Dump.

[25] National Priorities List Sites: New Jersey, United States Environmental Protection Agency, Office of Emergency & Remedial Response, Office of Program Management, at 2 (1991).

[26] Id.

[27] Id.

[28] Toxic Release Inventory data for 1991 required by SARA Title III.

[29] Id.

STATEMENT OF SCOTT A. WEINER, COMMISSIONER, NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION AND ENERGY

Good Morning. My name is Scott Weiner. I am the Commissioner of New Jersey's Department of Environmental Protection and Energy. I am pleased to be here today at what I hope to be the first of many insightful and thought provoking hearings into the Superfund Program. Consistent with the request of the Committee, my remarks today will focus on the status of the Superfund program in New Jersey—our accomplishments, what works, and what does not work. I look forward to participating in further discussions with the committee as it explores other Superfund issues.

Over the last several years, Superfund has been much maligned. Some of the criticisms of the program are appropriate; some are not. But, with the experience of the years since the 1986 reauthorization of the law, I think all interested parties can agree that there is a need to review the program's strengths and weaknesses so we can determine the future direction of the program to efficently and effectively remediate the contaminated sites that exist in the country.

The Superfund Program is responsible for a great deal of remediation work in New Jersey. Unfortunately, most people measure the success of the program by the number of Sites which have been "delisted." There is much more to the success of the Superfund Program than simply counting the number of delisted sites.

To better evaluate the remedial process, the Department divides larger sites into "subsites," or problem areas. By breaking sites down in this manner, the Department can allow for variations in the speed or extent to which a site is addressed. In this manner, the worst subsites can be addressed first, with remaining subsites moving through the process on a "worst-first" basis. In New Jersey there are currently 302 "subsites" at 113 National Priority List sites.

Of the 302 subsites, nearly half (145 or 48%) are complete, or in long term operation and maintenance (O&M) (no further action decisions - 36%; long term operation and maintenance (O&M) - 12%). Another 20 subsites (7%) are under construction and will soon be added to either the O&M or the no further action categories. 56 subsites (18%) are in the remedial design phase. And, 78 NPL subsites (26%) are in the study phase. There are only 3 NPL subsites (1%) in New Jersey at which work has not yet been initiated (see attached). This analysis more accurately represents the successes of New Jersey's Superfund Program than by saying that 5 NPL sites in the state have been delisted.

New Jersey has received $957 million dollars from the Federal Superfund, putting our state at the top of list of recipients of Superfund dollars. Since the inception of the program, New Jersey has received more Federal Superfund dollars than any other state.

Approximately $750 million dollars have been expended on actual construction activities. These activities include 16 waterline extensions or treatment systems, 18 ground water pump and treat systems, and 111 actions to treat, contain, or remove contaminated soils. These activities have resulted in less exposure to contaminants for our citizens and eliminated the opportunity for these chemicals to adversely impact the environment.

The Superfund Program is also an effective support mechanism for the overall remedial effort in New Jersey. During the 1980's, Superfund and other state cleanups programs were characterized by government agencies spending inordinate amounts of time trying to force responsible parties to conduct remediations at contaminated sites. However, in the latter part of the 1980's, that approach began to shift—the number of remediations conducted by private parties began to increase due to, among other things, the Underground Storage Tank (UST) program, property transfer laws (like our ECRA program) and private market forces such as lending practices. This shift has resulted in a more appropriate role for the publicly funded, or Superfund, program in New Jersey—focusing on sites where responsible parties have not been identified, are not viable, or are unwilling to conduct the remediation.

The Site Remediation Program in New Jersey is broken down into two major components—the publicly funded program and the privately funded program. The privately funded program negotiates with and oversees private party cleanups. Only when a responsible party is unknown, unwilling, or unable to conduct the necessary remediation will a site be transferred to the publicly funded program. This is, we think, an appropriate use of government and private finances and abilities.

The Superfund Program in New Jersey has worked well for several reasons. First, the state was very aggressive in the early years of the program; identifying many

NPL sites and securing more of the Federal Superfund dollars than any other state. Because we were out in front, our cleanups have progressed significantly.

Second, we believe that we have developed a good working relationship with USEPA. Anytime a crucial program or decision involves multiple governmental agencies, and particularly when the two agencies are from different levels of government (e.g. Federal and state, or state and local) there are bound to be disagreement and conflicts—the pressures and concerns are just different. However, with the common goal of remediating Superfund sites, we have been able to work through most of our disagreements to get sites remediated.

It is my understanding that issues regarding the strengthening of the USEPA/State partnership will be the subject of a future hearing. In my role as Commissioner, and as chair of the NGA Superfund Policy Forum, I have several suggestions for bringing states into the Superfund Program as true partners in environmental protection.

Third, New Jersey program is highly developed, thus avoiding unnecessary delays in obtaining New Jersey's position on Superfund activities. The Department will always take immediate action where there is an immediate threat to human health and the environment. This principle has resulted in the development of an excellent relationship with USEPA'S removal program to coordinate response actions in these situtations. Over the years, we have learned how to manage cases efficiently from the discovery of the contaminated site to private party negotiations to publicly funded remediation, where necessary.

Finally, New Jersey has the benefit of a very strong and active citizen's coalitions. Our state's residents are one of our best resources for ensuring that work is completed in a manner that is satisfactory to the local community.

I do not intend, however, to give you the impression that the Superfund Program is a perfect program. For its many benefits, there are areas, as there are in any program, where improvements can and should be made; and where critical evaluations of program performance and efficiency need to be undertaken. We have over 12 years of national experience implementing the Superfund Program. It is time to undertake a critical review of the program, and benefit from what the Federal and state governments have learned.

Superfund is by its nature a litigious program which has significant administrative costs. Persons may initiate litigation as early in the process as the time at which a site is being evaluated and ranked according to USEPA's Hazard Ranking System or as late as the remedial action phase - from beginning to end.

The Federal Superfund Program should shift to focus on contaminated sites where responsible parties are unknown, unwilling or unable to conduct the necessary remediation. This shift will result in a decrease in litigation and provide for a more efficient use of public and private resources.

The Superfund Program is lacking a clear definition of "how clean is clean." I am not suggesting that Superfund Reauthorization should address specific risk assessment criteria—the science of risk assessment is too detailed and involved to address in statute. Nor am I suggesting that USEPA develop national cleanup standards—differences in geology, depth to ground water, average rainfall, etc., would make development of such national standards difficult, if not impossible.

However, it would be good to set national risk management policy in Federal law. This policy should apply to all Federal cleanup programs (Superfund and RCRA) and should apply consistently throughout all phases of the remedial process (e.g. determining whether remediation is necessary, determining whether a proposed remedy is protective and finally, determining whether no further remediation is required at a site. Currently, USEPA uses both a one in one million excess cancer risk target level, or a site wide range of one in ten thousand to one in one million excess cancer risk level, depending on the program (RCRA vs. Superfund), and where a site is in the remedial process.

It would also be good if USEPA expedites their work in researching and developing clear, consistent regulatory methodologies for conducting risk assessments for both human health and the ecosystem. The Department would like USEPA to develop verified generic models and methodologies for assessing risk to human health and the environment at contaminated sites.

Recently, the New Jersey Senate passed a bill (5-1070) which sets a risk management policy for the State of New Jersey. The bill, if signed into law, will provide that levels of contaminants which result in an excess cancer risk of one in one million is unacceptable in the State of New Jersey.

By establishing a national risk management policy in Superfund, Congress would ensure that remediations conducted across the Nation would be effectuated to the same level of protectiveness, no matter where our country's residents live, no matter what their race or occupation.

Congress should also consider the role of cost differentials in the Superfund Program. For example, when is a more expensive remedy preferable? Are permanent remedies desirable and preferable no matter what the cost? Should non-permanent remedies be allowed if there exist permanent remedies which cost only slightly more? What is that cost differential?

The answers to these questions would provide USEPA, states and the regulated community with much needed answers to very important questions. Answering these questions will make remedy selection more consistent, fair and predictable.

Finally, Congress should explore the substantial differences that exist among the Superfund, RCRA and UST cleanup programs. Each of these Federal programs operate under separate guidance. Until July 1991, the Department of Environmental Protection and Energy operated similarly. However, in July 1991, the Department consolidated all remediation-type programs under one Assistant Commissioner for Site Remediation. The Site Remediation Program now oversees and has responsibility for all cleanup programs in the Department. Our program currently operates under the philosophy that a "cleanup is a cleanup" regardless of the statute that requires a cleanup. Our experience over the last two years indicates that a common approach to all contaminated sites results in a more understandable, consistent and efficient approach to site remediation. Such a change at the Federal level would have similar benefits.

In summary, although much maligned, the Superfund Program has made significant accomplishments in the State of New Jersey. The Superfund Program is working in New Jersey to reduce human health impacts and restore our environment. The Superfund Program is especially important to New Jersey by restoring sites and allowing redevelopment to occur. In addition to the suggestions I have discussed today, attention needs to be given to strategies for reducing transaction costs and for fostering better use of state and Federal resources in the Superfund Program. I hope to be able to present the committee with my thoughts on these important issues as it further deliberates on Superfund Reauthorization. Thank you very much for your consideration of my comments.

STATEMENT OF WILLIAM J. MUSZYNSKI, ACTING REGIONAL ADMINISTRATOR, REGION 2, U.S. ENVIRONMENTAL PROTECTION AGENCY

My name is William J. Muszynski. I am the Acting Regional Administrator for the United States Environmental Protection Agency, Region 2. This region includes the States of New Jersey and New York, the commonwealth of Puerto Rico and the United States Virgin Islands.

I appreciate the opportunity to review Region 2's experiences in carrying out the Superfund Program, both under the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) and under the Superfund Amendments and Reauthorization Act of 1986 (SARA).

In the 12 years that we have been implementing the Superfund Program, we have learned a great deal about those elements of the program which work well and those which need improvement. We have come to recognize that the program, once thought to be relatively straightforward and short lived, is actually one which is highly complex and will require years of effort. The lessons learned from administering the technical, community relations, enforcement and management aspects of superfund are now being utilized to refine and to streamline the program, to employ innovative technologies, to increase community involvement, to rigorously enforce the program and, most importantly, to address the worst risks at sites first while expediting the completion of construction at sites. During the first few years of the program, EPA focussed on assessing and characterizing sites so that they could be placed on the national priorities list. Our primary focus then shifted to selecting remedies for listed sites. Subsequently, emphasis was placed on designing and initiating construction of long-term cleanup actions while utilizing our enforcement tools to maximize the number of cleanups being conducted or paid for by parties determined to be responsible for the contamination. Nationally, we have progressed to the extent that, in fiscal year 1992, responsible parties signed on to undertake 72 percent of the new design and construction activities. Additionally, the agency has committed to completing construction work at the rate of approximately one site per week.

As requested by the subcommittee, I will focus my testimony on our activities in New Jersey. New Jersey has had more sites on the Superfund National Priorities List (NPL) than any other state. This can be attributed not only to early industrial development resulting in the prevalence of chemical and other manufacturing facilities in a densely populated state, but also to the policies and efforts of EPA and the State to aggressively seek out and identify potential sites for the priorities list.

EPA Region 2 and New Jersey's Department of Environmental Protection and Energy (DEPE) have developed what I consider to be an effective partnership in dealing with these sites. The following facts reflect our working relationship with the state. To date, EPA and DEPE have completed preliminary assessments at 1513 sites in New Jersey, out of a total inventory of 1550 potential sites. These have led to 936 site investigations, which in turn have thus far resulted in 113 being ranked high enough to be included on the NPL. In addition, 41 sites have undergone removal actions in lieu of assessments.

At this time, some kind of Federal or State action is underway at every NPL site in New Jersey. This action progresses through several stages: a remedial investigation to define the problem, a feasibility study of remedial alternatives, perhaps an interim remedial measure, a Record Of Decision (ROD) which selects the appropriate remedy, a detailed design producing plans and specifications for the selected remedy, and, finally, the construction or implementation of that remedy. EPA may address site remediation in phases or operable units in order to deal with the worst aspect of a site first. Thus, there may be more than one ROD for some sites.

Five of the 113 NPL sites have been removed from the NPL. Four additional sites are awaiting deletion and three are in a maintenance category requiring no further construction activity. A total of 40 sites are in the construction phase, 32 are in the design phase and 29 in the remedial investigation and feasibility phase. The region has signed 112 RODs selecting remedies for 84 sites.

The sites are categorized as either state or federal lead, and as either fund or enforcement lead. EPA and DEPE agree on which will take the lead at each site. Enforcement lead sites are those where we have identified responsible parties with whom we negotiate to carry out the work. The trust fund is utilized to finance the work at "orphan" sites where no financially viable responsible parties have been found, or where the site conditions are such that we cannot wait to negotiate with responsible parties, such as in the case of public health emergencies or recalcitrant responsible parties. Where the trust fund is used, EPA recovers that money, to the maximum extent practicable, from the responsible parties.

Since Superfund was first passed in 1980, EPA has obligated over $960 million in Federal Funds for work at New Jersey sites. This represents nearly 10 percent of all funds obligated by EPA for such activities nationwide. For your reference, at a similar field hearing in April 1987, we reported that approximately $140 million had been obligated for site work in New Jersey. More than $800 million, therefore, has been set aside for New Jersey sites in the last six years.

In addition, through enforcement efforts, EPA has reached agreements covering over $420 million in private party response actions. This compares to only $55 million six years ago. Furthermore, approximately $50 million has been recovered through cost recovery settlements, and we are pursuing cost recovery at an additional 17 sites through judicial actions. These efforts clearly reflect our increased emphasis and success relative to enforcement activities. Even more importantly, these increases in federal and responsible party funding represent a fundamental change in activity from the study phase to the site cleanup phase.

A question that creates much misunderstanding in the superfund program is how many sites have we actually "cleaned up"? There is usually a long time between the identification of the site and the completion of a remedial action and the point where we can say a site can be deleted from the NPL or "cleaned up." This lengthy period can be attributed to a variety of reasons including the complexity of the site, the need to fully integrate the affected public in the remedy selection process, and the complexity of the remedy. An additional factor limiting a site's removal from the NPL is the length of time the actual cleanup takes. A remedy may include both source control and long-term groundwater treatment actions. Even if we completed the source control portion of the remedy, the site could not be deleted until the groundwater was cleaned up.

Given the long term nature of the program and its goal to address the most significant risks to public health and the environment, site deletion is an inadequate measure of success taken by itself. A better indicator of progress is the "pipeline" of activities going on. In short, are we moving sites through the pipeline? I believe the statistics I have provided show substantial progress in this regard. Additionally, our response to immediate threats, as reflected in our removal activities, is also a measure of success.

Our removal authority has been used at sites where we have determined that an imminent threat to the public health or environment exists, whether or not the site is on the NPL. In the removal program, we can move quickly to respond to emergency situations and abate the threat without waiting for the full deliberate process of the remedial program to be completed.

Subsequent action under the remedial program may or may not be required.

Since Superfund began, EPA has spent nearly $60 million on approximately 190 removal actions in the State of New Jersey. Examples of such actions include the stabilization and removal of hazardous substances in drums, tanks and lagoons, excavation and disposal of highly contaminated soils and sludges, the installation of drinking water supplies to replace threatened or contaminated supplies and responding to tire and chemical fires.

The Region has utilized its direct contracting capabilities available under the removal program to address the most immediate health threats at NPL and non-NPL sites. This combination of removal and remedial actions has led to rapid and efficient cleanup actions at a number of New Jersey sites, thereby reducing the risk to the public and the environment.

Let me provide you with a site-specific example of an approach used by the region to accelerate sites through the process. It involves a cleanup in New Jersey involving a combination of remedial and removal actions. The white chemical site, located at 660 Frelinghuysen Avenue in Newark, contained over 11,000 55-gallon drums, several hundred cylinders, tanks and vats, and a number of rooms with thousands of lab-size containers. DEPE discovered that improper management of these materials had caused threatening conditions including spills and releases of hazardous substances, damaged, fuming and bulging drums, and the storage of incompatible materials. DEPE began a removal action at the site. After removing nearly 1000 drums, DEPE asked EPA to assume responsibility for the cleanup. EPA subsequently began overpacking the deteriorated drums and removing the material for off-site disposal in September 1990.

Because the cost of the cleanup was expected to significantly exceed $2 million, the region moved quickly, working with the Agency for Toxic Substances and Disease Registry (ATSDR) to include the white chemical site on the NPL using a quick listing procedure. Thus, at the same time we took removal actions to stabilize the site, EPA staff concurrently prepared an in-house feasibility study of remedial alternatives and the necessary documentation to list the site. As a result of these accelerated and combined efforts, the white chemical site was added to the NPL on September 25, 1991, and the region signed a record of decision for the surface cleanup the following day on September 26, 1991. Remedial funds were immediately authorized to continue the ongoing cleanup without interruption. The agency subsequently spent approximately $10.5 million stabilizing the site, removing 11,000 drums and over 100 gas cylinders, and emptying the contents of about 115 tanks.

While the removal and remedial efforts were in progress, EPA undertook an extensive investigation rich identified ten potentially responsible parties. On-April 1, 1992, EPA issued a unilateral administrative order to the parties for the completion of the remedial action. Three of the parties complied with the order and assumed the cleanup under EPA's direction. Thus, in less than three years, as a result of our pre-remedial, remedial, removal and enforcement staff working together concurrently, the site was identified and listed and the surface cleanup was completed. This significant and immediate threat to the residents and workers in newark has been removed.

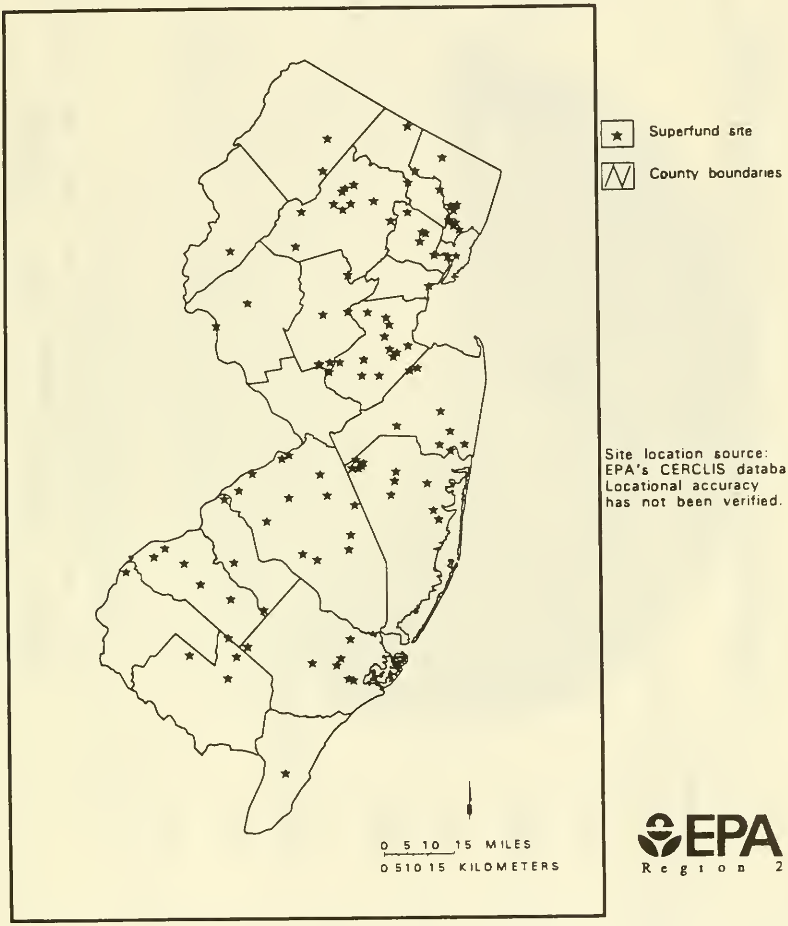
The region has gained considerable experience in addressing superfund sites and recognizes that a number of issues can delay the remedial process and the ultimate cleanup of such sites. Some of the more significant issues which can cause delays include difficulty in chaaactering complex site conditions, difficulties in obtaining access for testing or remediation, contracting problems, difficulties in obtaining valid, rapid turnaround sample analyses and including private party participation.

As we try to resolve these issues, we acknowledge and are sympathetic to concerns that the program is not moving fast enough. Thus we have been taking actions that in the meantime reduce risks to public health or the environment. In response to these concerns, each NPL site has been evaluated to ensure that, to the greatest extent possible, its immediate risk to the public is stabilized. In fact, Superfund remedial and removal staff in Region 2 jointly review all NPL sites no less than every other year to confirm that conditions posing unacceptable immediate risks do not exist or, if they do, to take prompt action to address them and render these sites stable, as we pursue long term remediation.

EPA is continuing to pursue improvements in the sometimes lengthy time periods from when a site is discovered and considered for inclusion on the NPL to the initiation of actual cleanup actions. The agency has developed an approach called SACM—Superfund Accelerated Cleanup Model—with the overall goal to make superfund cleanups more timely and efficient. This will be accomplished through more focus on the front end of the process and better integration of all superfund program components. Integrating our pre-remedial, remedial and removal program staff (in a manner similar to that which was done for the white chemical site discussed above) would allow certain activities to be performed concurrently instead of in sequence as is traditional. One of the benefits of this new approach is that EPA could move quickly to achieve risk reductions through the use of early actions. EPA is now evaluating various components of the sacm process in all ten regions with the goal of implementing the process nationwide in fiscal year 1994.

We recognize much work needs to be done and that we must constantly work to ensure improvements yet I feel we have made notable progress and are able to report a significant reduction in the risks to public health posed by superfund sites. I want to thank you for your attention. I will be pleased to answer your questions.

New Jersey Superfund Sites



Site location source:
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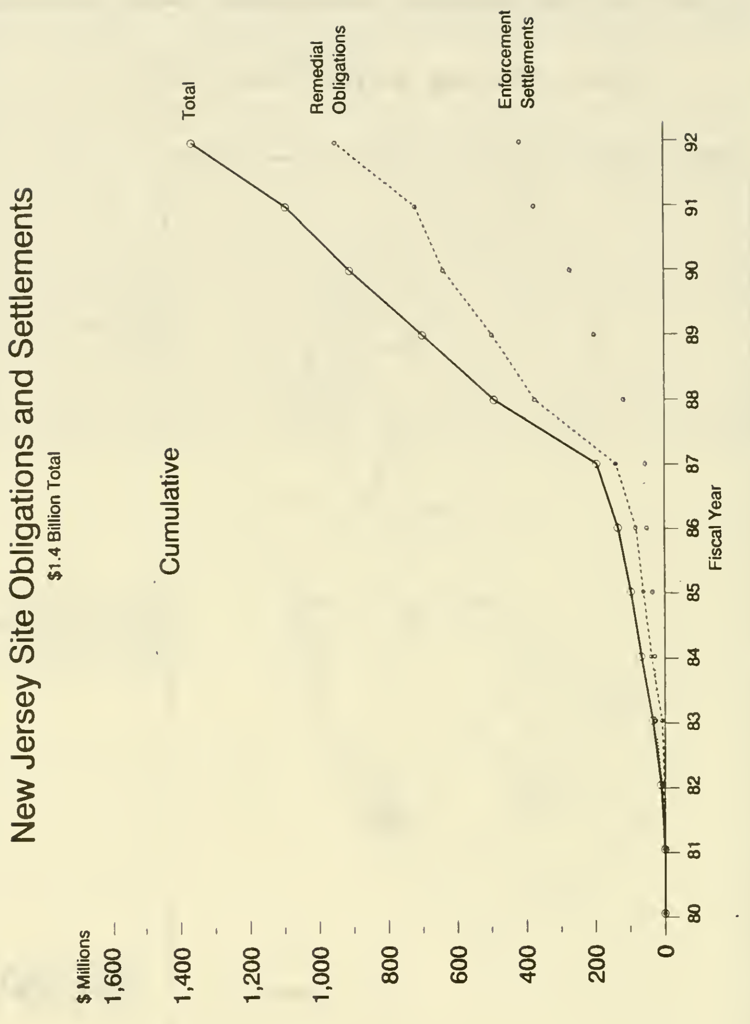
Locational accuracy
has not been verified.

EPA
Region 2

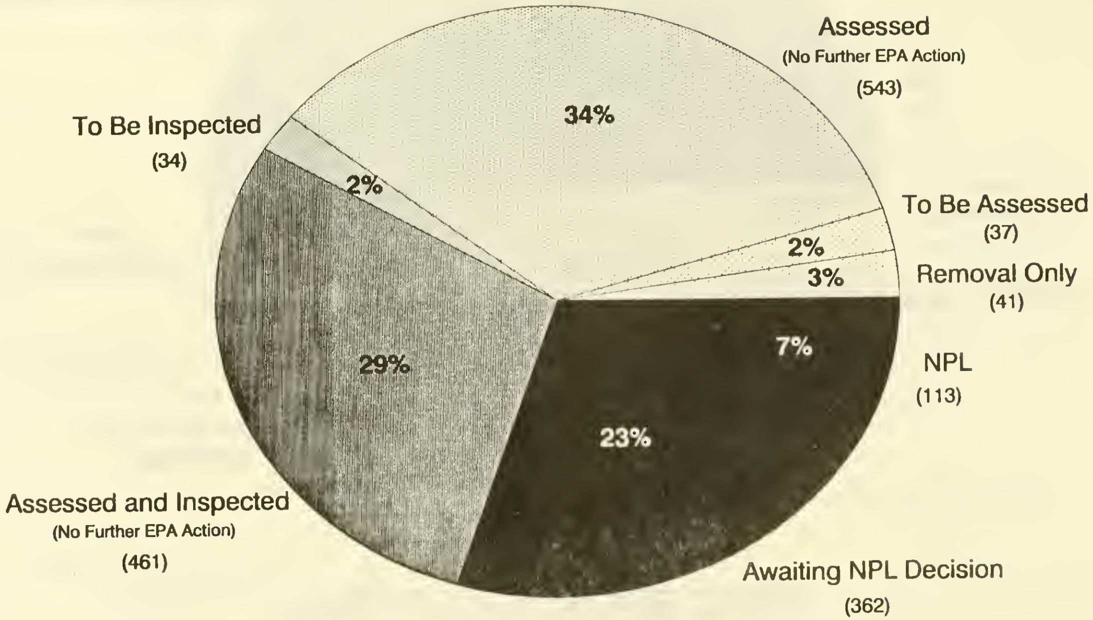


New Jersey Site Obligations and Settlements

$1.4 Billion Total

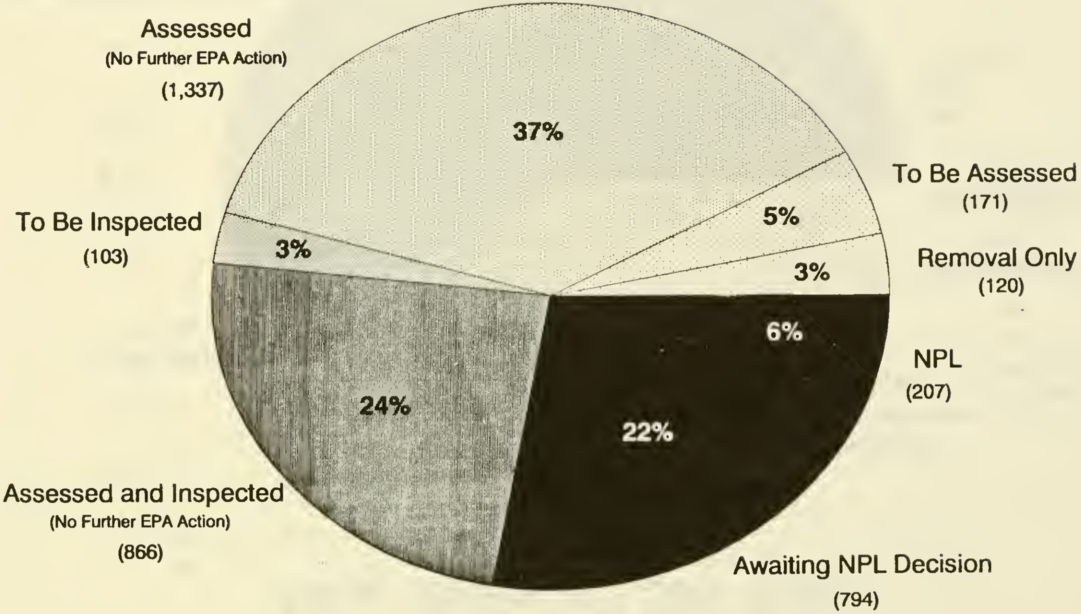
New Jersey's 1,591 Sites

Current Status



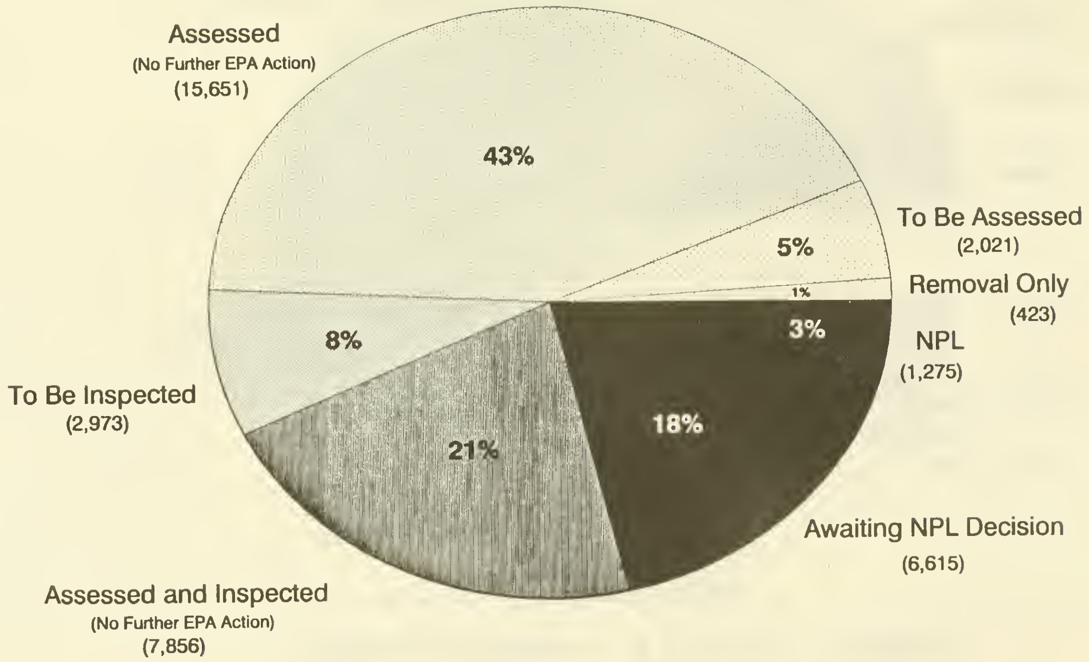
Region II's 3,598 Sites

Current Status



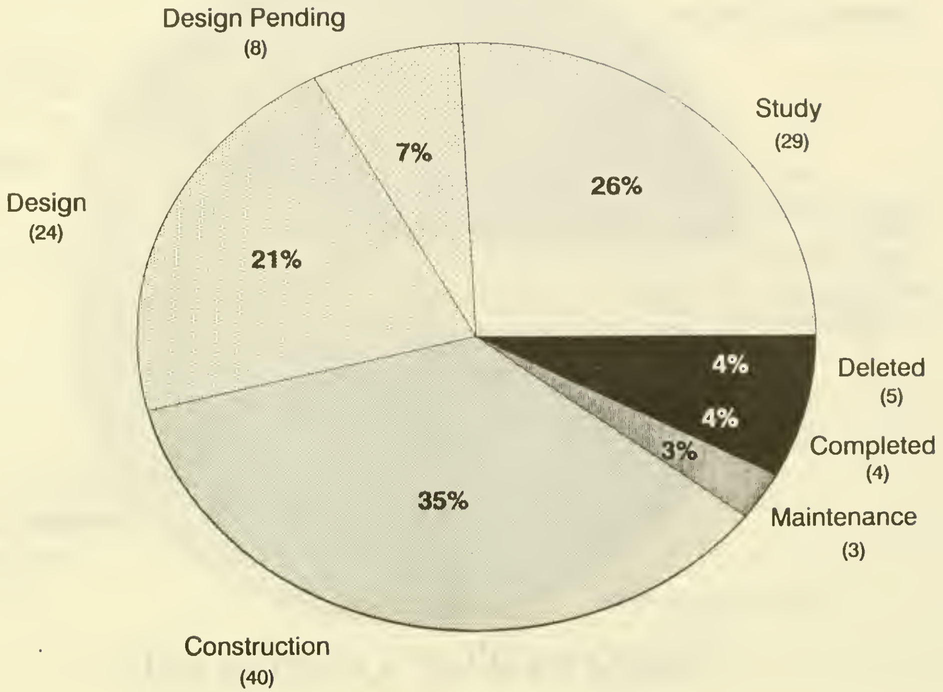
The Nation's 36,814 Sites

Current Status



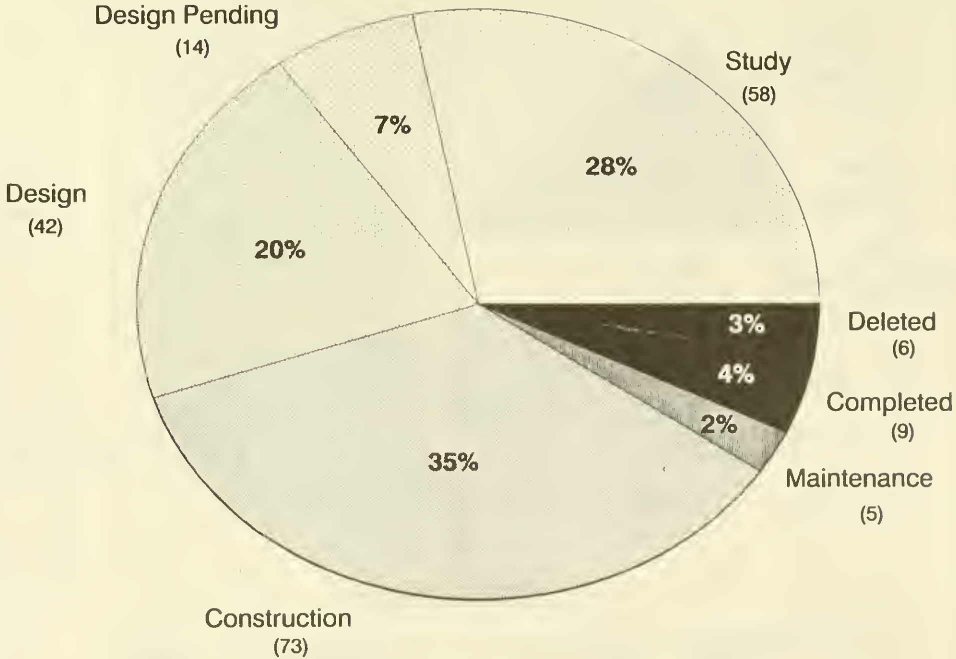
New Jersey's 113 NPL Sites

Current Status



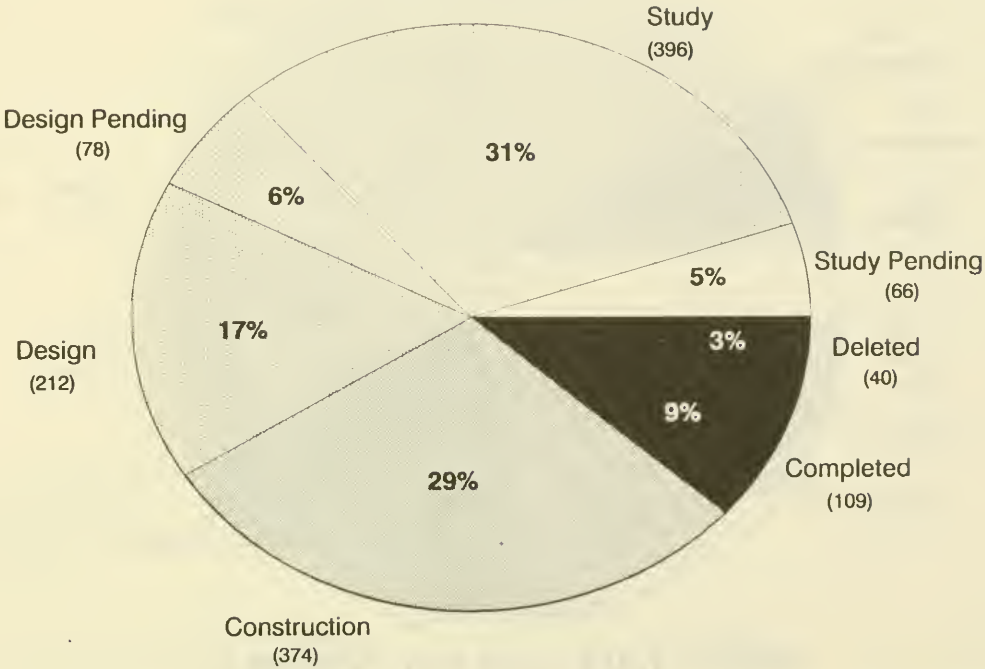
Region II's 207 NPL Sites

Current Status



The Nation's 1,275 NPL Sites

Current Status



STATEMENT OF HON. JOSEPH VAS, MAYOR, CITY OF PERTH AMBOY

INTRODUCTION

I would like to thank Senator Lautenberg for the opportunity to share the hard lessons we have learned in Perth Amboy over the past twenty years. It is my hope that we will learn from the lessons of the City of Perth Amboy's Runyon Watershed so that no community will have to learn these same hard lessons. There is something for everyone to learn from this experience - the state, the Federal Government, other municipalities and hopefully, the industries who have been found liable for contaminating one of our nation' s greatest natural resources - drinking water from pristine groundwater sources.

My name is Joseph Vas and I have served as the Mayor of the City of Perth Amboy since July 1990. I am not an environmental expert. I am a citizen who likes to drink clean water and an elected official who is responsible for the quality of the drinking water provided to over 50,000 people in two municipalities.

I am pleased to provide this Subcommittee with testimony as an elected official who supports the basic philosophy of the Superfund Program - and - has also learned from experience that there are areas where the Superfund Program may be strengthened and improved. If you wish to learn from Perth Amboy's experiences with a long standing environmental disaster that ranks 10th on the national Superfund Priorities List and 4th on New Jersey's Priorities List - we have many lessons to share!

Today, I will attempt to summarize those lessons for you.

HISTORY OF THE CONTAMINATION OF THE CITY OF PERTH AMBOY'S RUNYON WATERSHED

The City of Perth Amboy's (City) drinking water supply has been contaminated for over twenty years. The City's drinking water supply is derived from pumping the ground water located in the 1,200 acre Runyon Watershed. The Runyon Watershed is the City's source of drinking water and consists of two aquifers located beneath the City's property in Old Bridge Township. The municipally operated water treatment and distribution system has been in operation since the 1890's.

The two aquifers underlying the Runyon Watershed have been designated by the New Jersey Department of Environmental Protection and Energy (NJDEPE) as "critical aquifers." These aquifers comprise virtually the sole source of potable water for Middlesex County south of the Raritan River. Each aquifer faces a threat to its future as a potable water source. One aquifer has been contaminated by salt water and a major portion of the other has been contaminated with volatile organics and heavy metals by two industries adjacent to the Runyon Watershed. Unsafe levels of zinc, chlorobenzene and benzene have been detected in the groundwater since the early 1970's.

THE SOURCE OF CONTAMINATION OF THE RUNYON WATERSHED

In the 1960's, Madison Industries (Madison) and CPS Chemical, Inc. (CPS) located their chemical processing facilities adjacent to the aquifer that supplies the City its drinking water and along Pricketts Brook, which is just upstream of the City's well field and water works. Pricketts Brook and Pricketts Pond are responsible for feeding or "recharging" the water to the two aquifers that comprise the Runyon Watershed.

In the early 1970's, contamination was discovered as a result of complaints from City residents about the color and taste of the City's drinking water. Investigation by city officials and the NJDEPE led to the shutdown of a number of production wells and in 1973, the NJDEPE directed the City to discontinue use of the entire line of thirty-two (32) production wells.

In 1973, a report issued by the NJDEPE determined that Madison and CPS' were responsible for the contamination of the City's property and drinking water.

And in 1983, a Court Order found Madison/CPS jointly and severally liable for the contamination of the Runyon Watershed.

THE THREAT TO THE CITY'S DRINKING WATER SUPPLY

After fifteen years of inaction on the part of the Industries, what started as a limited groundwater problem, has spread posing a potentially devastating threat to Perth Amboy's drinking water supply. The presence of volatile organics and heavy metals, chlorobenzene and zinc, in the City's water supply is a major concern to the City in light of the fact that its Water Treatment Plant does not have a system in Place to treat volatile organic compounds or metals. The City's ability to provide quality drinking water that meets all safe drinking water standards is threatened by the spreading plume of contaminants.

The willingness of the Industries to provide a treatment system capable of protecting the City's water supply is seriously questionable and yet, without such a system, the City may be forced to permanently such down its drinking wells. The State's willingness to pay for such a treatment system has been tempered by its desire to have the Industries pay for the clean up costs directly.

As a result, about sixteen months ago, in November 1991, the City sought the U.S. Environmental Protection Agency's (USEPA) assistance and assurance that if the Industries were not forthcoming with an interim treatment system, the USEPA would be willing to provide such a system through the Superfund Program. The City received the USEPA's assurance that it would install a new series of monitoring wells closer to the City's well field to determine how far the contaminant plume had spread and how high the levels of contamination had risen. In January 1992, the USEPA installed this monitoring system and collected data for several months.

The sampling data revealed that although the level of volatile organics was rising they had not reached levels which permitted the USEPA to take immediate action with the resources of the Removal Action Program.

The City felt that it was trapped in a "no man's land" with the resources of both the state and Federal Government just out of reach and the resources of the industries securely tucked away.

One year later, in April 1992, after the City felt it had exhausted all efforts to speed the installation of interim treatment for the threatened drinking wells, it returned to Superior Court for assistance in asserting its rights and protecting its drinking water.

THE LEGAL HISTORY

The legal history is long and complex. There have been millions of dollars spent by all parties in this matter. Almost every cleanup timeline set within a court order has been ignored by the Industries. Financial assurances that the court ordered the Industries to post hve been withheld until recently. Within the last eight months, one industry, CPS, posted the financial assurance required under court order. The other industry, Madison, balked and has filed for bankruptcy.

Originally, in 1977, the Industries were sued for contamination of the Runyon Watershed by both the City and NJDEPE, seeking damages, penalties and mandatory injunctive relief ordering CPS and Madison to capture, control and remove these pollutants before they contaminated the City' s remaining sources of drinking water. After a trail in the New Jersey Superior Court, a decision was rendered in 1981, establishing that Madison and CPS were liable and responsible for the clean up of the site.

The 1981 Court Order fixed the amount of cleanup costs to be paid by the Industries to the NJDEPE. The City was awarded minimal money damages for the loss of property based upon the limited extent of the contaminant plume at that time.

All parties appealed this decision, and in 1983, the Appellate Division issued a decision which affirmed the cleanup plan outlined in the 1981 Court Order but removed the fixed dollar amount for the clean up and held the Industries to be jointly and severally liable for all current and future clean up costs.

The 1983 Court Order was not implemented by the Industries. Instead, the Industries hired an environmental engineering firm to develop and propose an alternative groundwater recovery program to NJDEPE. The story of the next nine years is filled with inaction and delay.

In 1988, the NJDEPE and the Industries made a motion to amend the prior Court Order to reflect the new remediation plan proposed by the Industries. The Court Order was amended and then from 1988 to 1990 no action was taken to monitor the spread of the plume of contaminants. In effect, no temporary or interim measures were taken for a decade to stem the spread of the contaminants.

Finally, in January 1991, after much arm twisting the first phase of the cleanup plan began with the installation of recovery wells. Then in February 1991, chlorobenzene and zinc were detected in Perth Amboy's drinking wells 5 and 6 in excess of the safe drinking water standards. This discovery prompted the City to discontinue use of drinking well 5 and minimize the use of drinking well 6.

The next step the City took was to return to Superior Court with a motion to amend the 1988 Court Order and take the Industries out of the driver's seat and put the City and the NJDEPE in control of the clean up process.

As a result, the NJDEPE was placed in control of the cleanup and the City became the "general contractor" at the local level. The Superior Court Judge ordered monthly progress reports and set tight timeframes for design and construction of a treatment system for the most threatened of the City's at risk drinking wells. Finally, the installation of a water treatment system and the protection of the City' s drinking water supply seemed within reach.

The story however is not over. The Industries have again sought to delay the process and one of the industries, Madison, has filed for bankruptcy and removed the case to a Federal bankruptcy court. Within the next week, the City will have a clearer picture of how serious the impact of this latest tactic will be on the progress of the cleanup, as the City and the NJDEPE have petitioned to have the case returned to the Superior Court.

LESSONS LEARNED FROM THE PERTH AMBOY EXPERIENCE

Lesson #1-Who Is Really In Charge Of The Cleanup?

The Runyon Watershed' s long story is complicated by the fact that it predates many statutes and regulations enacted to prevent such environmental disasters. As a result over the past two decades numerous private and public entities have been pointing the finger at each other and disavowing responsibility for both the contamination and the clean up. During this period, it has often been difficult to determine who was in charge at any given time. Although I acknowledge that in the past the City of Perth Amboy may have moved more aggressively, I believe that a cumbersome system that does not clearly identify the agency ultimately responsible and accountable is the major culprit in this long and tragic history.

The Industries

From 1981 to 1990, the Industries - CPS and Madison - were for all intents and purposes in charge of the cleanup. The history of this ten year period is rife with legal delays and technical disputes. From November 1990 to April 1992, the City aggressively renewed its efforts to work with NJDEPE and the Industries in the hope that the clean up would finally begin. This effort produced the first visible action in almost a decade. In January 1991, one aspect of the three pronged court ordered cleanup plan was implemented. A series of recovery wells were turned on to pump, treat and dispose of contaminated groundwater through the county sewer system.

But the action was too little too late. The plume of contaminants had spread beyond the scope of the treatment system which had been designed years earlier. The first step of the clean up only slowed the spread of the some of the contaminants—it did not contain the entire plume since the two other remediation measures were never constructed.

The NIEPE and the USEPA

Since the NJDEPE was designated the "Lead Agency", the City had little or no contact with the USEPA.

In November 1991, the City determined that it was in its best interest to contact the USEPA directly and request that it become actively involved in the cleanup process. The City requested that the USEPA undertake the necessary interim remedial measures to abate the contamination and protect drinking wells 5 and 6 from the immediate threat. The City also requested that the USEPA conduct and fund a Remedial Investigation and Feasibility Study (RI/FS) for the Runyon Watershed.

It was the City's position that the Industries had failed to comply with the requirements of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) or its regulations concerning the development of an RI/FS. The industries had informed the NJDEPE that no RI/FS was required.

As a result, in January 1992, the USEPA became involved by installing a monitoring system to compile and analyze up-to-date data on the spread of the contaminant plume and the rising level of contaminants.

The "Lead Agency and the City

Finally, in July 1992, as the result of new legal action initiated by the City, an amendment to the 1988 Court Order placed the NJDEPE in charge of the clean up and made the City the "general contractor" of the clean up. Now, the NJDEPE relies on the City and its environmental consultants to prepare feasibility studies, issue bids, select contractors and monitor the construction of the new treatment facilities for its endangered drinking wells.

Thus, it has only recently become clear who is in charge of the cleanup of the Runyon Watershed. For years, the lines of accountability and communication had been blurred by layers of bureaucracy and years of technical and legal disputes.

Lessons

The single most important lesson that should be learned from Perth Abboy's experience is that the health, safety and welfare of the public should be our first priority. Cleanup of contaminated water supplies must take place first and the arguments about who is responsible and who will pay should not delay implementation of remedial measures.

Another lesson that has been learned by the events I have described is that industry cannot be trusted to do the right thing. All to often industry would rather pay lawyers to help them save money than use the money to save our environment and save lives.

Lesson #2-How Could A Clean-Up Take So Long?

It is very difficult to explain to Perth Amboy residents why the start of the clean up of the Runyon Watershed has taken so very long. It is even more difficult to answer when the cleanup will be completed. It is the most difficult to explain that it is considered acceptable to have any trace of heavy metals or volatile organics in our groundwater or our drinking water.

In our recent aggressive efforts to move the clean up forward the City has chosen not to speculate on why it has taken so long to get the clean up started. This was a practical, legal, technical and political decision. Instead, the City took action and hired an highly experienced environmental law and environmental engineering firm who were charged with representing the City's best interests and getting the clean up started at all costs.

This approach placed the burden for jumpstarting the cleanup on the entity least able to afford the expense - the municipality. The City, however, had no choice. The threat to public safety outweighed the cost of getting the best legal and technical experts on our team as soon as possible. To date the City has spent millions of dollars that could have been used for countless other improvements and services which local government must provide.

As I have outlined, the legal history of the Runyon Watershed is a fifteen year story of motions filed and court orders ignored. The disputes over which remediation plan would be implemented served to delay the implementation of any remediation plan until it was rendered obsolete by the spread of the contaminant plume. The cost of the remediation plan played the most significant role in the delay of the construction of any cleanup effort. Disputes over whether state or Federal safe drinking water standards were in effect also served to delay implementation of the remediation plan.

Looking back, it is unclear why the NJDEPE did not enforce the 1983 or the 1988 Court Order. It, however, is equally unclear why the USEPA never took a more aggressive role in monitoring the progress of the cleanup even if the state was the Lead Agency for the site.

Lessons

Looking back, the lessons to be learned from the example of the Runyon Watershed do seem clear. Industries who are found responsible for polluting a natural resource should never be put in charge of the cleanup. They should fund the cost of the cleanup and have input into the clean up process - but - they should never be in charge.

There must be a place with a sign on the door that says "The Buck Stops Here." The Federal Government must clearly define what it means to be the "Lead Agency" in the cleanup of a Superfund site. There should be clear administrative procedures or regulations which outline the responsibilities of the Lead Agency, so that, in the end there can be no finger pointing between the state and the Federal Government.

Lines of communication between all levels of government should be clearly defined and regular communication mandated. Unfortunately, we cannot rely on voluntary cooperation and communication when the public's health, safety and peace of mind is at stake.

In the case of the Runyon Watershed there are three levels of government charged with protecting this natural resource - a municipality, the state and the Federal Government. Yet, local government is held the most accountable by the residents of Perth Abboy. Local government cannot escape direct contact with residents and taxpayers concerned about the quality of their drinking water and their health and safety.

All levels of government are in this together. No municipality should be left standing alone in the courtroom or the in court of public opinion to fight the industries whose sole objective is to delay the cost of paying for a court ordered clean up. Neither should a municipality be left waiting while the state or Federal Government to give the industries "one more chance" to demonstrate good faith and take action - simply because the state or Federal Government do not want to spend their own resources for the court ordered cleanup.

Another lesson from Perth Amboy's experience is that there must be a "drop dead date" by which the Federal Government will commit its resources to a site where a Superfund cleanup has not begun. Administrative procedures or regulations should mandate specific timelines for initiating the cleanup of a Superfund site.

A reasonable time period must be defined for the cleanup of all Superfund sites for the failure to commit Federal resources to the cleanup of a Superfund site undermines the integrity and credibility of the entire program.

And last, but not least, a municipality should be part of the decisionmaking process and communication's loop at all times. There is no reason why the municipality cannot be a full partner in the cleanup process.

CONCLUSION

I'd like to thank Senator Lautenberg and the members of this Subcommittee for recognizing that Perth Amboy's experience is one that we can and should learn from. No community should be doomed to repeat this experience.

The saga of the Runyon Watershed, however, is not over. The Industries continue to raise concerns about cost and technical matters to delay the inevitable construction of remediation measures.

I can assure you that the City will continue to be aggressive and treat this issue as one of its highest priorities. I implore you to consider that the Runyon Watershed can become one of the USEPA's success stories for the 1990's. It need not be cited as an example of the failure of the 1980's.

As you review the Superfund Program, please consider that sometimes the simplest course of action is the best way to resolve complex situations. A heavy dose of common sense in streamlining the Superfund statute and its administrative procedures and regulations will lessen the chance that another Runyon Watershed will happen again.

Thank you for your attention and courtesy. I would remind you that the City of Perth Amboy and its environmental consultants will be available if our assistance is required in future hearings to ensure the reauthoriziation of the Superfund statute.

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